

# Acer AT3220A/3220B/3220 LCD TV

## Service Guide

Service guide files and updates are available on the ACER/CSD web; for more information, please refer to <http://csd.acer.com.tw>

Project Code: T58

PRINTED IN TAIWAN

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## Revision History

Please refer to the table below for the updates made on Acer LCD TV AT3220/3220A/3220B service guide.

| Date       | Chapter   | Updates                                                 |
|------------|-----------|---------------------------------------------------------|
| 2006/08/08 | Chapter 1 | Revise PIP/PBP/POP supporting configuration on page 37. |
|            |           |                                                         |
|            |           |                                                         |
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## Conventions

The following conventions are used in this manual:

|                        |                                                                                      |
|------------------------|--------------------------------------------------------------------------------------|
| <b>SCREEN MESSAGES</b> | Denotes actual messages that appear on screen.                                       |
| <b>NOTE</b>            | Gives bits and pieces of additional information related to the current topic.        |
| <b>WARNING</b>         | Alerts you to any damage that might result from doing or not doing specific actions. |
| <b>CAUTION</b>         | Gives precautionary measures to avoid possible hardware or software problems.        |
| <b>IMPORTANT</b>       | Reminds you to do specific actions relevant to the accomplishment of procedures.     |

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## Preface

Before using this information and the product it supports, please read the following general information.

1. This Service Guide provides you with all technical information relating to the BASIC CONFIGURATION decided for Acer's "global" product offering. To better fit local market requirements and enhance product competitiveness, your regional office MAY have decided to extend the functionality of a machine (e.g. add-on card, modem, or extra memory capability). These LOCALIZED FEATURES will NOT be covered in this generic service guide. In such cases, please contact your regional offices or the responsible personnel/channel to provide you with further technical details.
2. Please note WHEN ORDERING FRU PARTS, that you should check the most up-to-date information available on your regional web or channel. If, for whatever reason, a part number change is made, it will not be noted in the printed Service Guide. For ACER-AUTHORIZED SERVICE PROVIDERS, your Acer office may have a DIFFERENT part number code to those given in the FRU list of this printed Service Guide. You MUST use the list provided by your regional Acer office to order FRU parts for repair and service of customer machines.

# System Specifications

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## Features

This LCD TV was designed with the user in mind. Here are just a few of its many features:

### LCD Panel

- ☐ Max. resolution: 1366x768
- ☐ Display area: 32 inches diagonal
- ☐ Display color: 16.7 M colors (8 real bits per color)
- ☐ Life time: 60,000 hours
- ☐ Input Signal: 1-ch LVDS
- ☐ Contrast ratio: 1200:1 ( Typ )
- ☐ Brightness: 200 cd/m<sup>2</sup> ( Typ )
- ☐ Response Time: AUO Typ. Gray to gray Tr=Tf=8ms
- ☐ Viewing angle: 176° ( L ) / 176° ( R ), 176° ( U ) / 176° ( D )

### I/O Functions

- ☐ RCA jack (YUV and CVBS) for YPbPr, YCbCr, video and audio
- ☐ Support 480i/576i, 480p/576p, 1080i and 720p format
- ☐ Built-in dynamic adaptive smoothing filter
- ☐ Built-in dynamic temporal frame-filtering noise reduction
- ☐ Built-in dynamic motion and edge adaptive de-interlacing

### Video Functions

- ☐ Support PAL/NTSC/SECAM video format (for AT3220A)
- ☐ 15 pin D-sub for VGA
- ☐ 24 pin DVI/HDCP for DVI-D (optional)
- ☐ 19 pin HDMI connector (optional)
- ☐ DIN45325 (IEC169-2) Terminal for TV/CATV input
- ☐ 3.5 mm Earphone jack for audio line input
- ☐ Screen display model 16:9 / 4:3 / panorama / zoom / PIP / POP (Film mode 3:2 & 2:2 pull down)

### Mechanical

- ☐ Dimensions (W x H x D mm): 814 x 610 x 261
- ☐ Weight (kg/lbs.): 17.7/39
- ☐ Wall-mounting holes 400mm x 200mm

### Power Source

- ☐ Input voltage: 100 ~ 264 V, 50 ~ 60 Hz
- ☐ Input current: 2.2A
- ☐ Standby consumption is under 5 Watts
- ☐ Power consumption is under 185 Watts

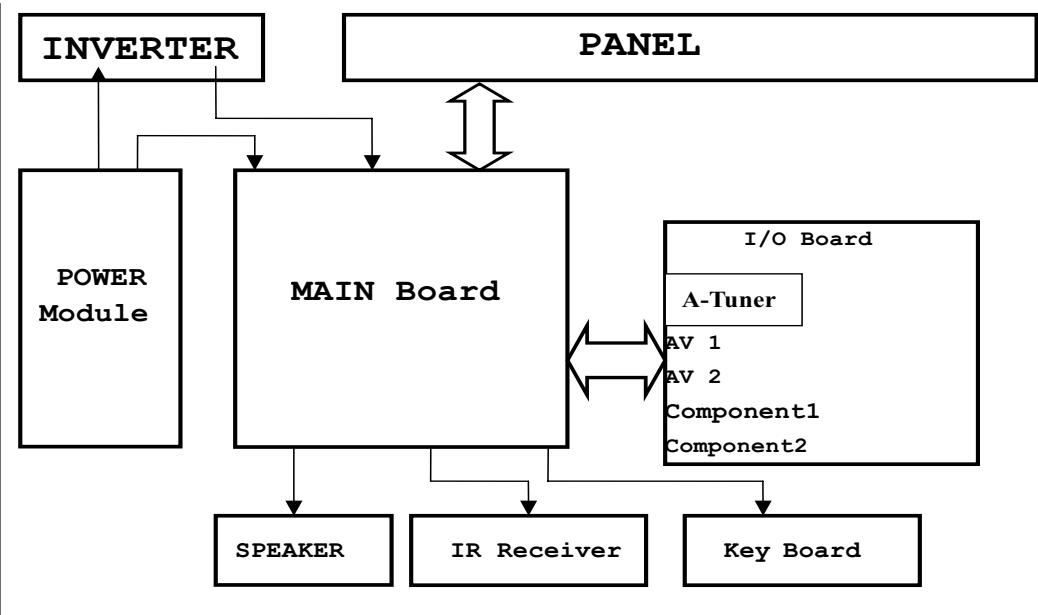
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## Speaker

- ☐ Internal speaker: 10 W \* 2 stereo, volume adjustable
- ☐ Amplifier: 8W \* 2 stereo, volume adjustable

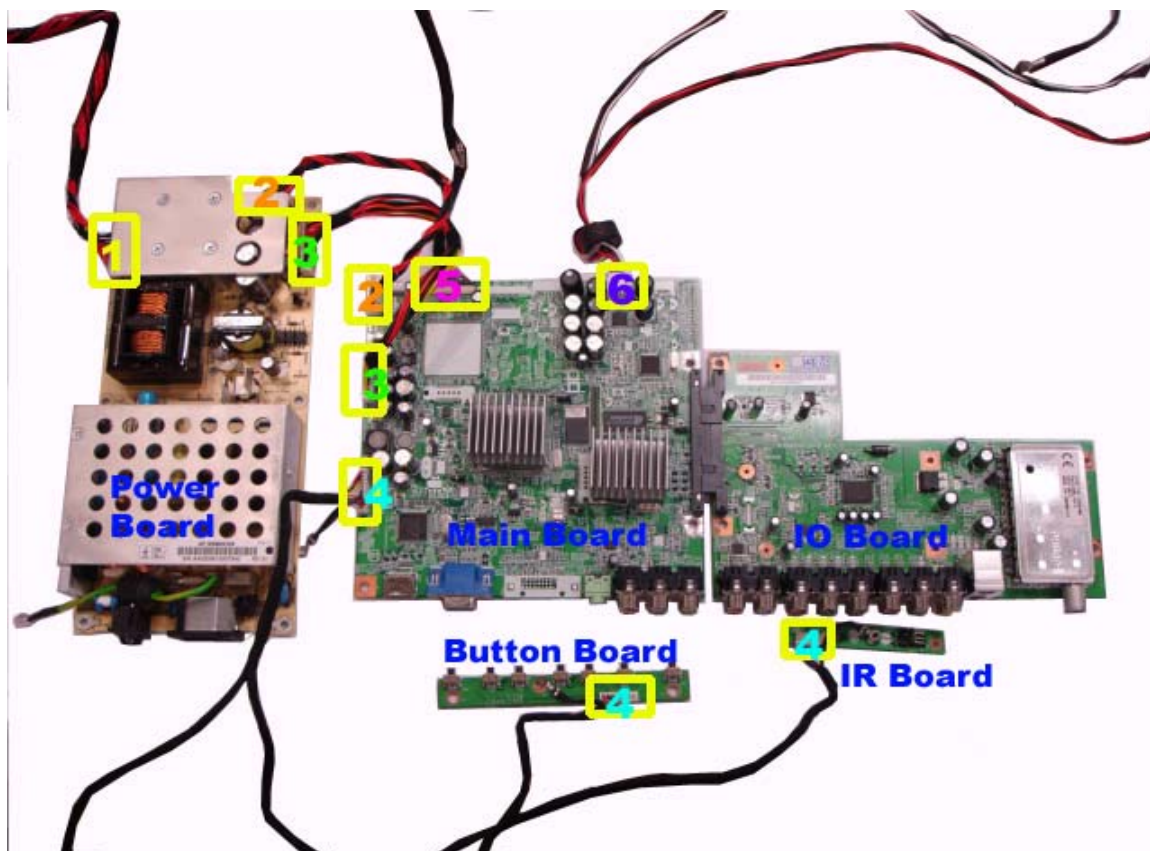
# System Block Diagram

## System Block and Wiring Diagram



## LCD Main Board Block Diagram

## Board Layout



### Cable Arrangement

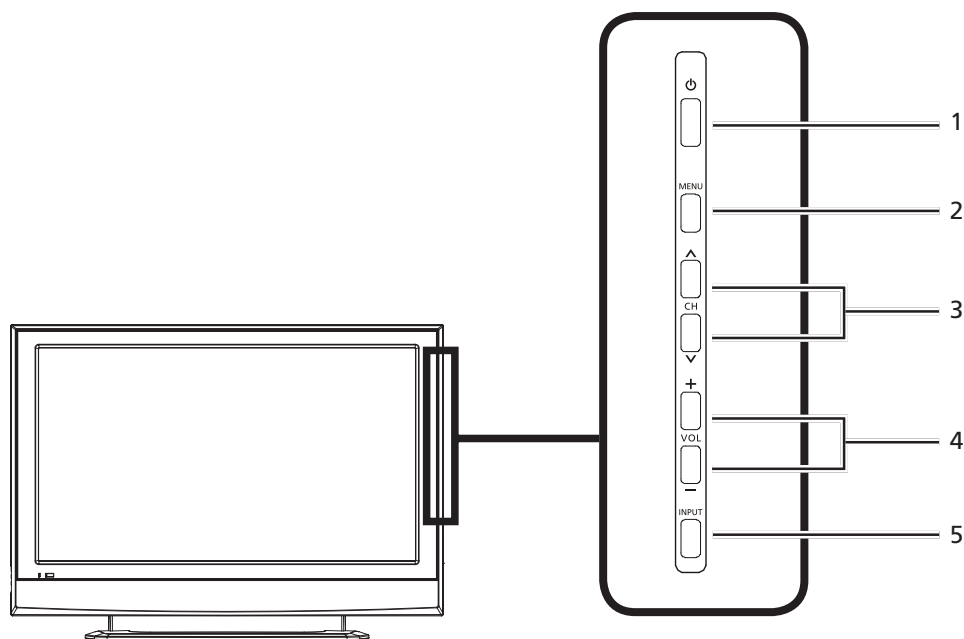
| No. | Connector                                           | Cable Description                                  |
|-----|-----------------------------------------------------|----------------------------------------------------|
| 1   | CN908 (Power Board)                                 | Inverter Cable                                     |
| 2   | CN903 (Power Board) <--> CON15 (Main Board)         | Audio Cable-Main board (audio) to power board      |
| 3   | CN904<-->CON11                                      | Power Cable                                        |
| 4   | CON6 (Main Board) -CN1(Button Board)-CN1 (IR Board) | Button Board-IR Board (CN1)-Main Board (CN1) Cable |
| 5   | CON17 (Main Board)                                  | LVDS Cable                                         |
| 6   | CON13 (Main Board)                                  | Speaker Cable                                      |

# LCD TV Overview

A general introduction to Acer LCD TV ports, functions and indicators.

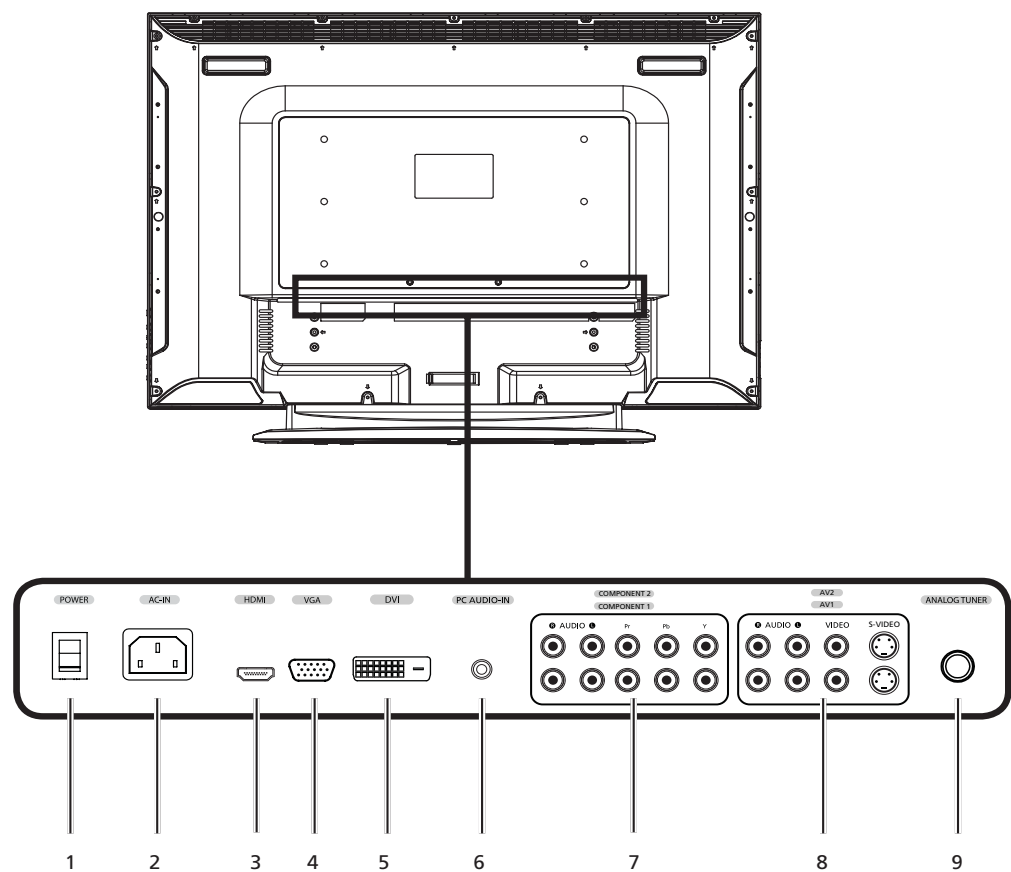
## AT3220A/AT3220B/AT3220 Front panle view

The panel view below is for AT3220A/AT3220B/AT3220.



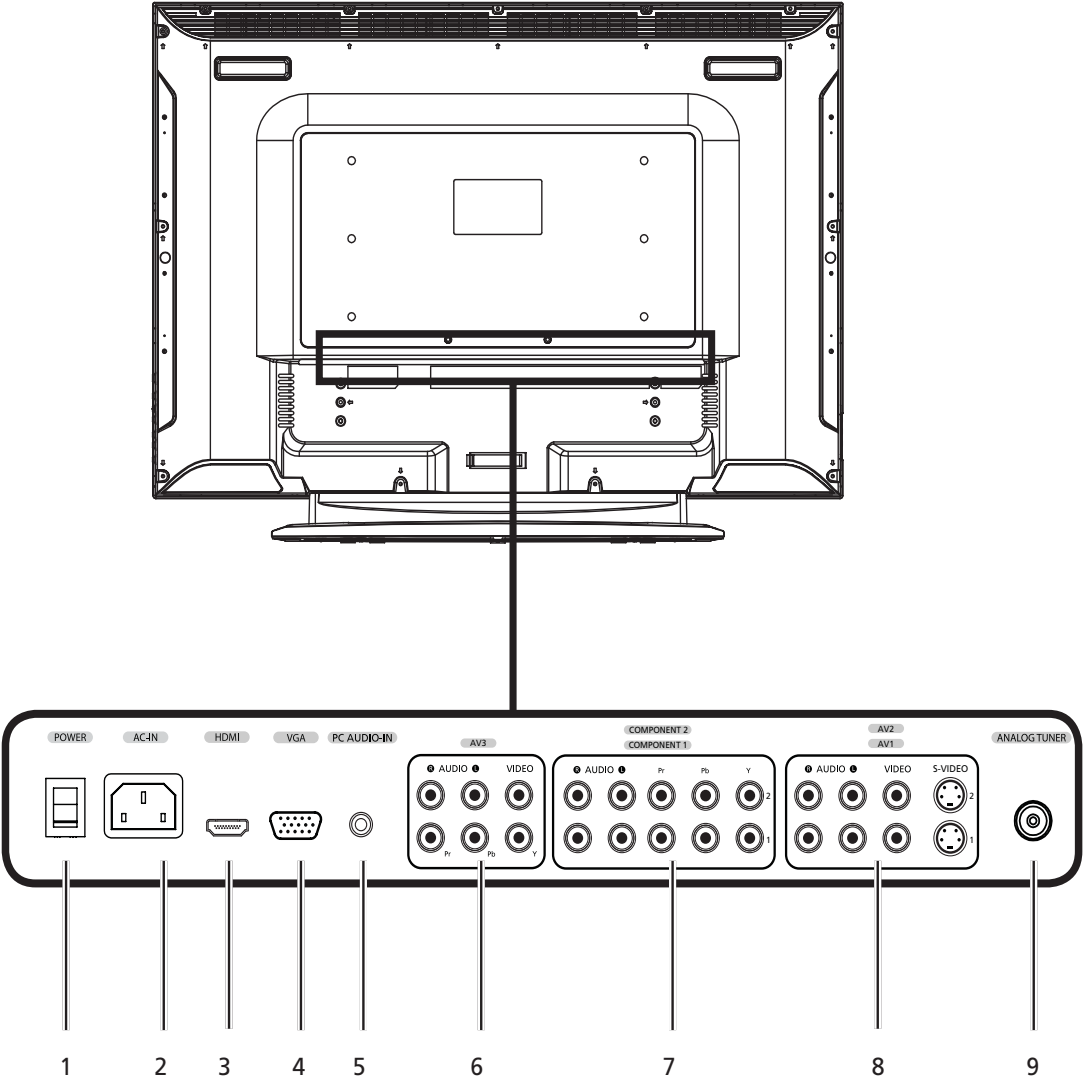
| # | Item            | Description                                                                                                                                     |
|---|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Power On/Off    | Power on or off the LCD TV.                                                                                                                     |
| 2 | Menu key        | Turn s the OSD menu On and OFF.                                                                                                                 |
| 3 | Channel up/down | Channel up: When the OSD is on, functions the same as the Up arrow.<br>Channel down: When the OSD is on, functions the same as the Down arrow.  |
| 4 | Volume +/-      | Volume up: When the OSD is on, functions the same as the Right arrow.<br>Volume down: When the OSD is on, functions the same as the Left arrow. |
| 5 | Input key       | When is OSD is on, press this button to confirm selection.                                                                                      |

# T3220A Rear panel view



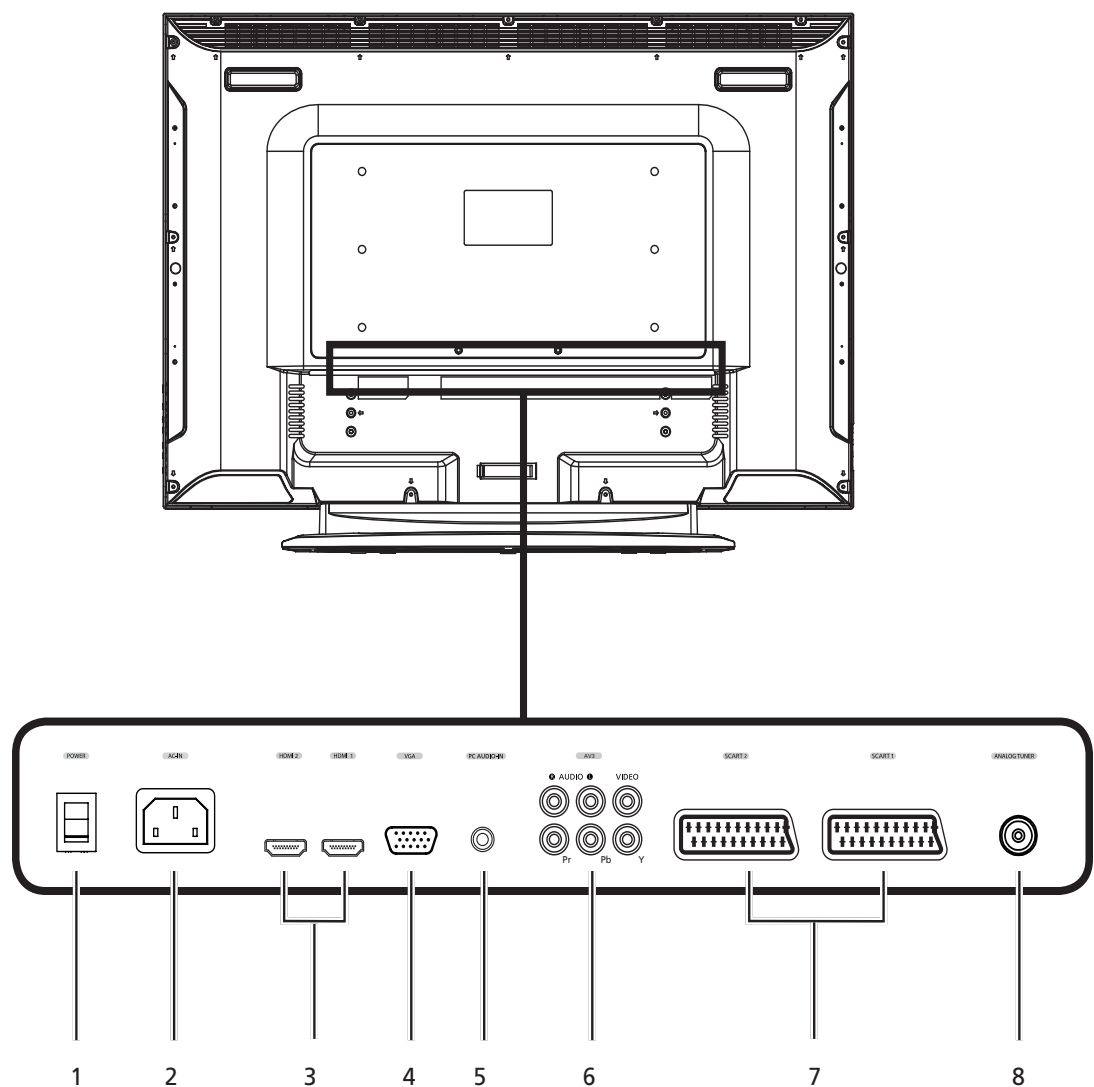
| # | Item         | # | Item                         |
|---|--------------|---|------------------------------|
| 1 | Power switch | 6 | PC Audio-in                  |
| 2 | AC-in        | 7 | AV-Audio L/R + COMPONENT 1/2 |
| 3 | HDMI         | 8 | AV-Audio L/R + CVBS 1/2      |
| 4 | VGA-in       | 9 | Analog antenna               |
| 5 | DVI-d        |   |                              |

AT3220B Rear panel view



| # | Item         | # | Item                             |
|---|--------------|---|----------------------------------|
| 1 | Power switch | 6 | Audio L/R + CVBS + COMPONENT     |
| 2 | AC-in        | 7 | Audio L/R + CVBS + COMPONENT 1/2 |
| 3 | HDMI         | 8 | Audio L/R + CVBS 1/2 + S-Video   |
| 4 | VGA-in       | 9 | Analog antenna                   |
| 5 | PC Audio-in  |   |                                  |

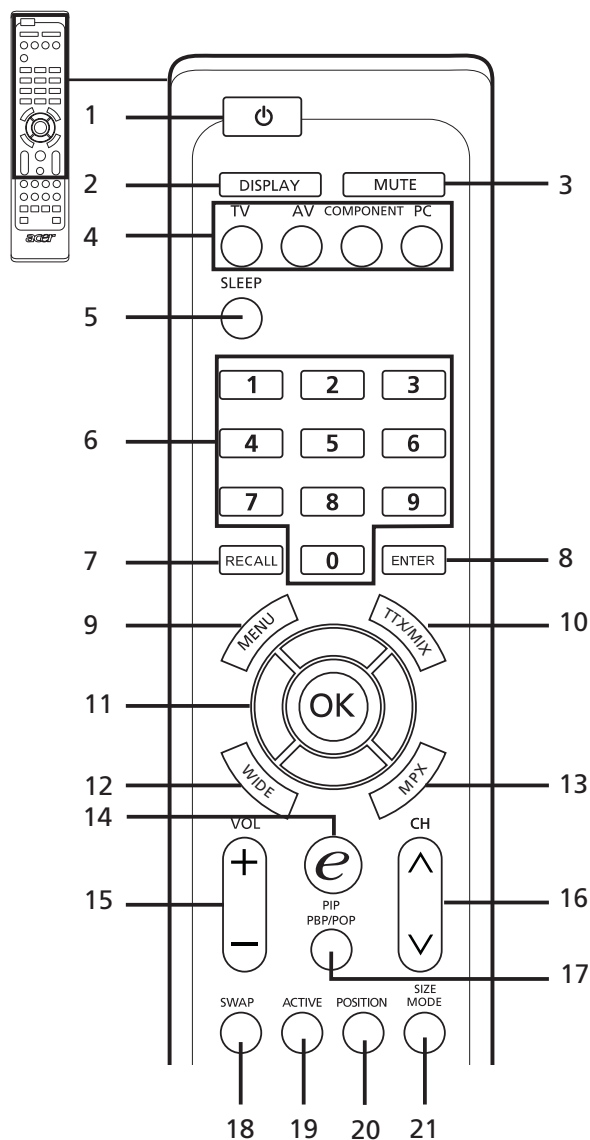
# AT3220 Rear panel view



| # | Item         | # | Item                            |
|---|--------------|---|---------------------------------|
| 1 | Power switch | 5 | PC Audio-in                     |
| 2 | AC-in        | 6 | AV-Audio L/R + CVBS + COMPONENT |
| 3 | HDMI         | 7 | SCART                           |
| 4 | VGA-in       | 8 | Analog antenna                  |

# AT3220A Remote controller

## General Keys

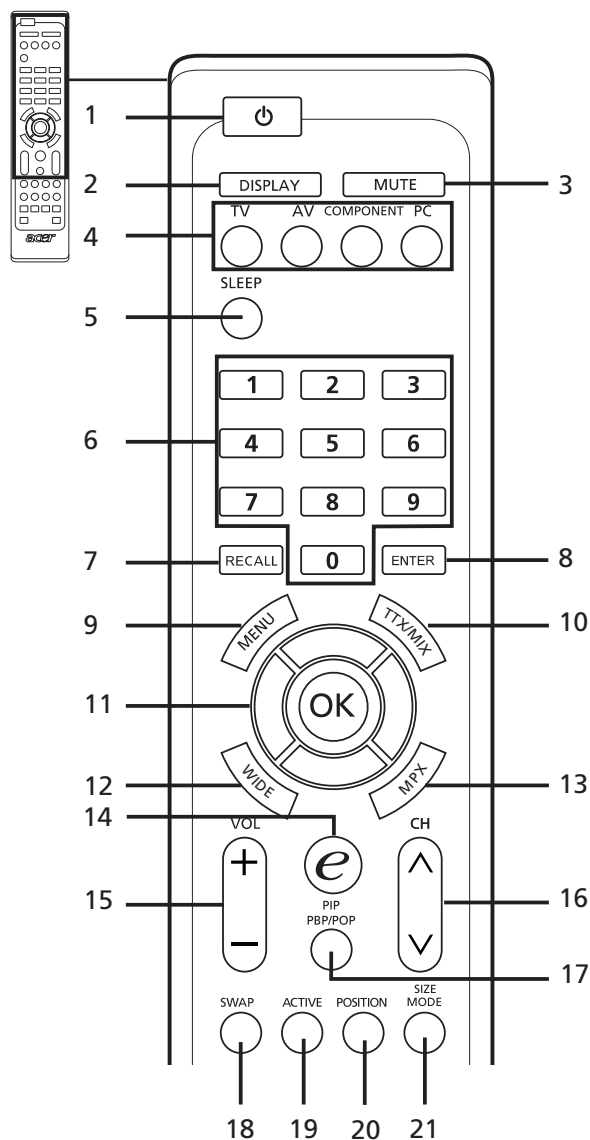


| No. | Item                                   | Description                                                                                                      |
|-----|----------------------------------------|------------------------------------------------------------------------------------------------------------------|
| 1   | POWER                                  | Press to turn your TV on/off.                                                                                    |
| 2   | DISPLAY                                | Press to display input/channel information (dependent on input/source type).                                     |
| 3   | MUTE                                   | Press to toggle audio on and off.                                                                                |
| 4   | Input buttons (TV/AV/<br>COMPONENT/PC) | Press to select correct input mode.                                                                              |
| 5   | SLEEP                                  | Press to set a time period after which the TV will switch itself to standby (15, 30, 45, 60, 90 or 120 minutes). |
| 6   | Number keys                            | Press to select the TV channel.                                                                                  |
| 7   | RECALL                                 | Press to return to the previous channel.                                                                         |

|    |                           |                                                                                                                       |
|----|---------------------------|-----------------------------------------------------------------------------------------------------------------------|
| 8  | ENTER                     | Press to confirm channel number selection.                                                                            |
| 9  | MENU                      | Press to open or close the Menu.                                                                                      |
| 10 | CC                        | Press to select close caption and text service between CC1, CC2, CC3, CC4, Text1, Text2, Twxt3, Text4.                |
| 11 | Directional keys/OK       | N/A                                                                                                                   |
| 12 | WIDE                      | Press to toggle scaling mode between 4:3; 16:9, Panorama and Letterbox 1, 2, 3 modes.                                 |
| 13 | MTS                       | Press to switch the sound system between stereo, main and SAP. Information is displayed in the top right-hand corner. |
| 14 | e (Empowering Technology) | Press to activate Acer Empowering Technology.                                                                         |
| 15 | VOL (+/-)                 | Press to increase or decrease the volume.                                                                             |
| 16 | CH (up/down)              | Press to sequentially select the TV channel.                                                                          |
| 17 | PIP/PBP/POP               | Switch between PIP/PBP/POP modes.                                                                                     |
| 18 | SWAP                      | For PIP/PBP mode: Toggle between the primary and subscreens.                                                          |
| 19 | ACTIVE                    | Toggle between primary and subscreens.                                                                                |
| 20 | POSITION                  | When in PIP mode: Change subscreen position.                                                                          |
| 21 | SIZE/MODE                 | When in PIP mode: Change subscreen size. When in POP mode: Switch POP mode from 1+5 to 1+12.                          |

# AT3220B Remote controller

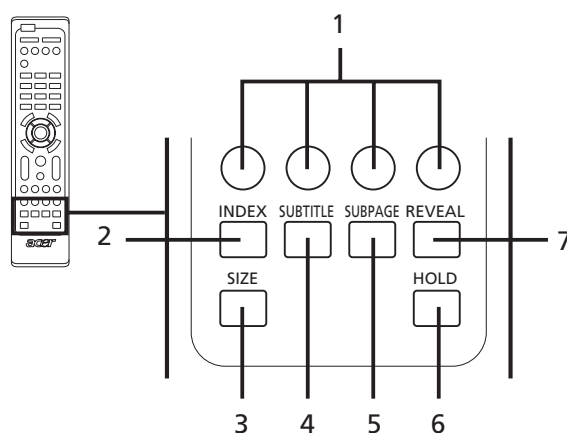
## General Keys



| No. | Item                                   | Description                                                                                                      |
|-----|----------------------------------------|------------------------------------------------------------------------------------------------------------------|
| 1   | POWER                                  | Press to turn your TV on/off.                                                                                    |
| 2   | DISPLAY                                | Press to display input/channel information (dependent on input/source type).                                     |
| 3   | MUTE                                   | Press to toggle audio on and off.                                                                                |
| 4   | Input buttons (TV/AV/<br>COMPONENT/PC) | Press to select correct input mode.                                                                              |
| 5   | SLEEP                                  | Press to set a time period after which the TV will switch itself to standby (15, 30, 45, 60, 90 or 120 minutes). |
| 6   | Number keys                            | Press to select the TV channel.                                                                                  |
| 7   | RECALL                                 | Press to return to the previous channel.                                                                         |

|    |                           |                                                                                                    |
|----|---------------------------|----------------------------------------------------------------------------------------------------|
| 8  | ENTER                     | Press to confirm channel number selection.                                                         |
| 9  | MENU                      | Press to open or close the Menu.                                                                   |
| 10 | TTX/MIX (TELETEXT/MIX)    | Press to return to the previous channel.                                                           |
| 11 | Directional keys/OK       | N/A                                                                                                |
| 12 | WIDE                      | Press to toggle scaling mode between 4:3; 16:9, Panorama and Letterbox 1, 2, 3 modes.              |
| 13 | MPX                       | Press to select the sound input, displayed in the top right-hand corner (mono, stereo, bilingual). |
| 14 | e (Empowering Technology) | Press to activate Acer Empowering Technology.                                                      |
| 15 | VOL (+/-)                 | Press to increase or decrease the volume.                                                          |
| 16 | CH (up/down)              | Press to sequentially select the TV channel.                                                       |
| 17 | PIP/PBP/POP               | Switch between PIP/PBP/POP modes.                                                                  |
| 18 | SWAP                      | For PIP/PBP mode: Toggle between the primary and subscreens.                                       |
| 18 | ACTIVE                    | Toggle between primary and subscreens.                                                             |
| 20 | POSITION                  | When in PIP mode: Change subscreen position.                                                       |
| 21 | SIZE/MODE                 | When in PIP mode: Change subscreen size. When in POP mode: Switch POP mode from 1+5 to 1+12.       |

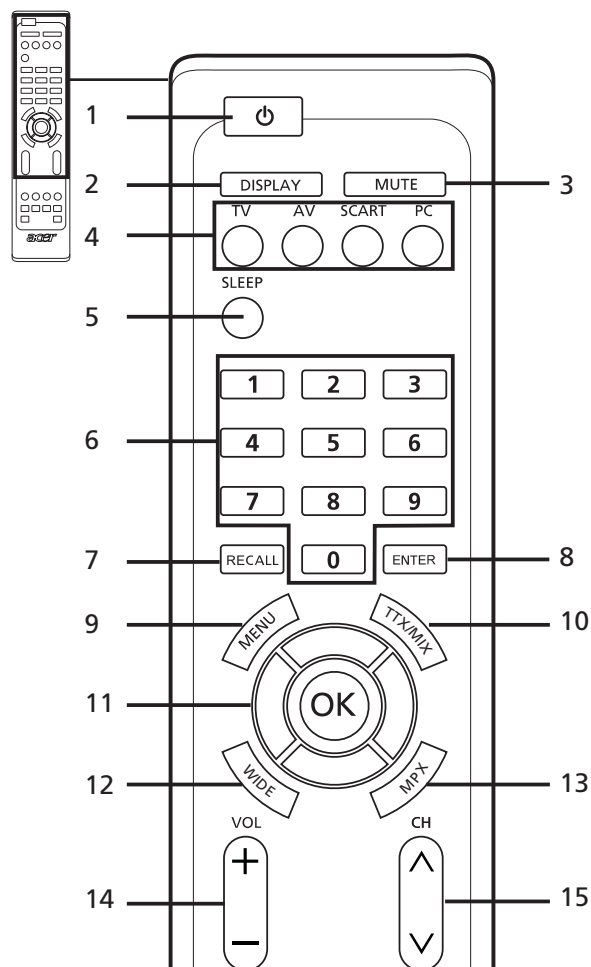
## Teletext



| No. | Item                     | Description                                                          |
|-----|--------------------------|----------------------------------------------------------------------|
| 1   | Colour buttons (R/G/Y/B) | Operates corresponding button on the teletext page.                  |
| 2   | INDEX                    | Press to go to the index page.                                       |
| 3   | SIZE                     | Press once to zoom teletext page to 2X. Press again to resume.       |
| 4   | SUBTITLE                 | Press to view subtitles on the screen.                               |
| 5   | SUBPAGE                  | Press to access the teletext's subpages directly.                    |
| 6   | HOLD                     | Press to pause the current teletext page in multi-page viewing mode. |
| 7   | REVEAL                   | Press to reveal hidden teletext information.                         |

# AT3220 Remote controller

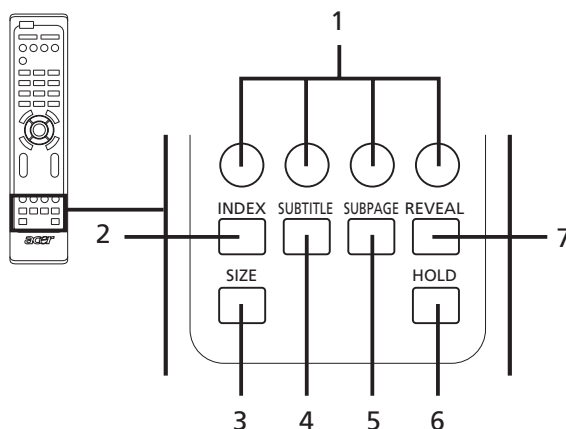
## General Keys



| No. | Item                           | Description                                                                                                      |
|-----|--------------------------------|------------------------------------------------------------------------------------------------------------------|
| 1   | POWER                          | Press to turn your TV on/off.                                                                                    |
| 2   | DISPLAY                        | Press to display input/channel information (dependent on input/source type).                                     |
| 3   | MUTE                           | Press to toggle audio on and off.                                                                                |
| 4   | Input buttons (TV/AV/SCART/PC) | Press to select correct input mode.                                                                              |
| 5   | SLEEP                          | Press to set a time period after which the TV will switch itself to standby (15, 30, 45, 60, 90 or 120 minutes). |
| 6   | Number keys.                   | Press to select the TV channel.                                                                                  |
| 7   | RECALL                         | Press to return to the previous channel.                                                                         |
| 8   | ENTER                          | Press to confirm channel number selection.                                                                       |
| 9   | MENU                           | Press to open or close the Menu.                                                                                 |
| 10  | TTX/MIX (TELETEXT/MIX)         | Press to return to the previous channel.                                                                         |
| 11  | Directional keys/OK            | N/A                                                                                                              |

|    |              |                                                                                                    |
|----|--------------|----------------------------------------------------------------------------------------------------|
| 12 | WIDE         | Press to toggle scaling mode between 4:3; 16:9, Panorama and Letterbox 1, 2, 3 modes.              |
| 13 | MPX          | Press to select the sound input, displayed in the top right-hand corner (mono, stereo, bilingual). |
| 14 | VOL (+/-)    | Press to increase or decrease the volume.                                                          |
| 15 | CH (up/down) | Press to sequentially select the TV channel.                                                       |

## Teletext



| No. | Item                     | Description                                                          |
|-----|--------------------------|----------------------------------------------------------------------|
| 1   | Colour buttons (R/G/Y/B) | Operates corresponding button on the teletext page.                  |
| 2   | INDEX                    | Press to go to the index page.                                       |
| 3   | SIZE                     | Press once to zoom teletext page to 2X. Press again to resume.       |
| 4   | SUBTITLE                 | Press to view subtitles on the screen.                               |
| 5   | SUBPAGE                  | Press to access the teletext's subpages directly.                    |
| 6   | HOLD                     | Press to pause the current teletext page in multi-page viewing mode. |
| 7   | REVEAL                   | Press to reveal hidden teletext information.                         |

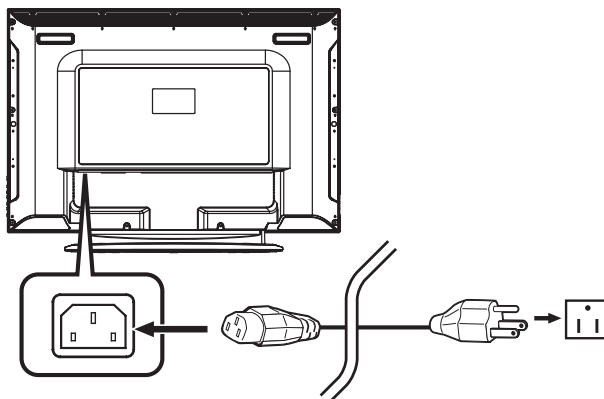
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## Basic connection

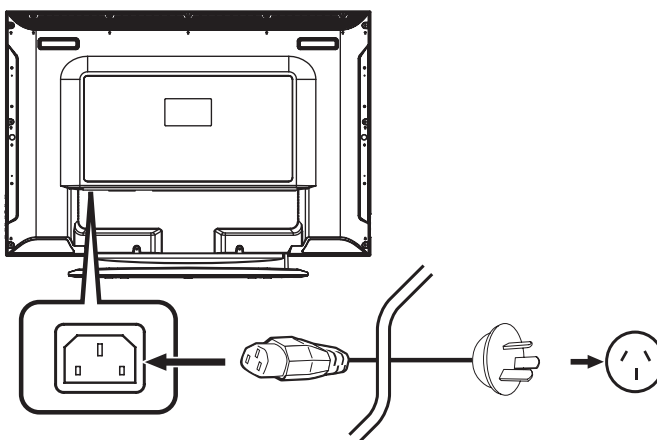
### Connecting the power cord

1. Connect the AC cord into the AC input on the back of the set.
2. Connect the male plug to the wall outlet as shown.

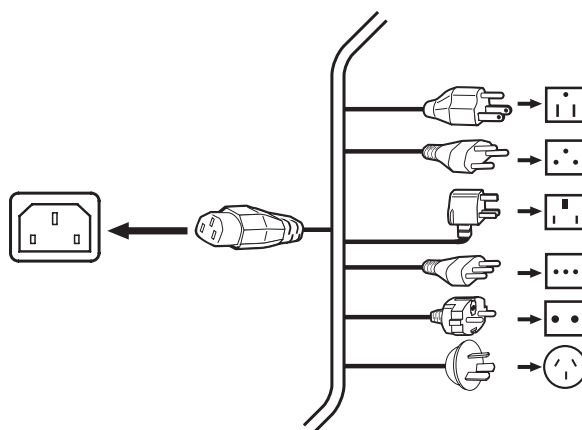
**For AT3220A:**



**For AT3220B:**

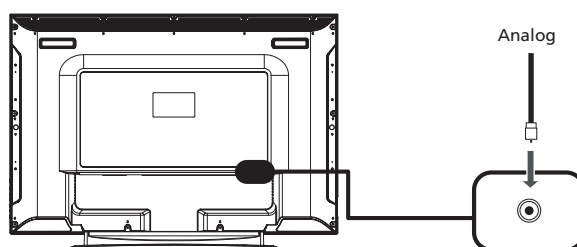


**For AT3220:**

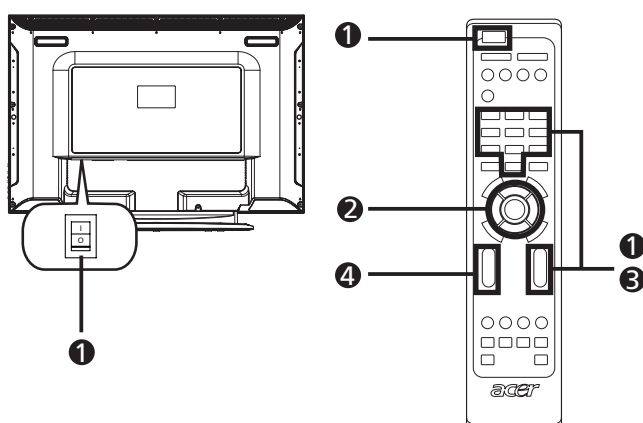


## Connecting an antenna/cable

Connect the antenna cable to the appropriate antenna terminal on the back of the TV set as shown below.



## Getting started watching your TV



1. Select the setup language you prefer.
2. Please select country.
3. Ensure that your co-axial cables connected correctly before proceeding.

- 
4. Scan for analog channels.
  5. Setup is now complete. You are ready to begin watching TV.

If you leave the setup process before it is complete, you will be given a choice of options:

1. Resume setup
2. Resume setup wizard at next startup
3. Exit and do not remind me

Select an option and press OK to exit.

| No. | Description                                                                                                                                                                                                                                                                     |
|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | Power<br>a. Turn on the power switch beneath the screen.<br>b. Press the power button, number keys or channel up / down button on the remote control.                                                                                                                           |
| 2   | Setup Wizard<br>The first time you switch on the TV, the Setup Wizard will guide you to complete the language selection and channel scanning.<br>Press OK key to begin the setup process.                                                                                       |
| 3   | Changing channels<br>a. Press 0-9 on the remote control to select a channel. The channel changes after 2 seconds. Press ENTER to select the select the channel immediately.<br>b. Pressing the channel (CH) up/ down button on the remote control will also change the channel. |
| 4   | Adjusting the volume<br>Adjust the volume level using the (VOL) +/- button on the remote control.                                                                                                                                                                               |

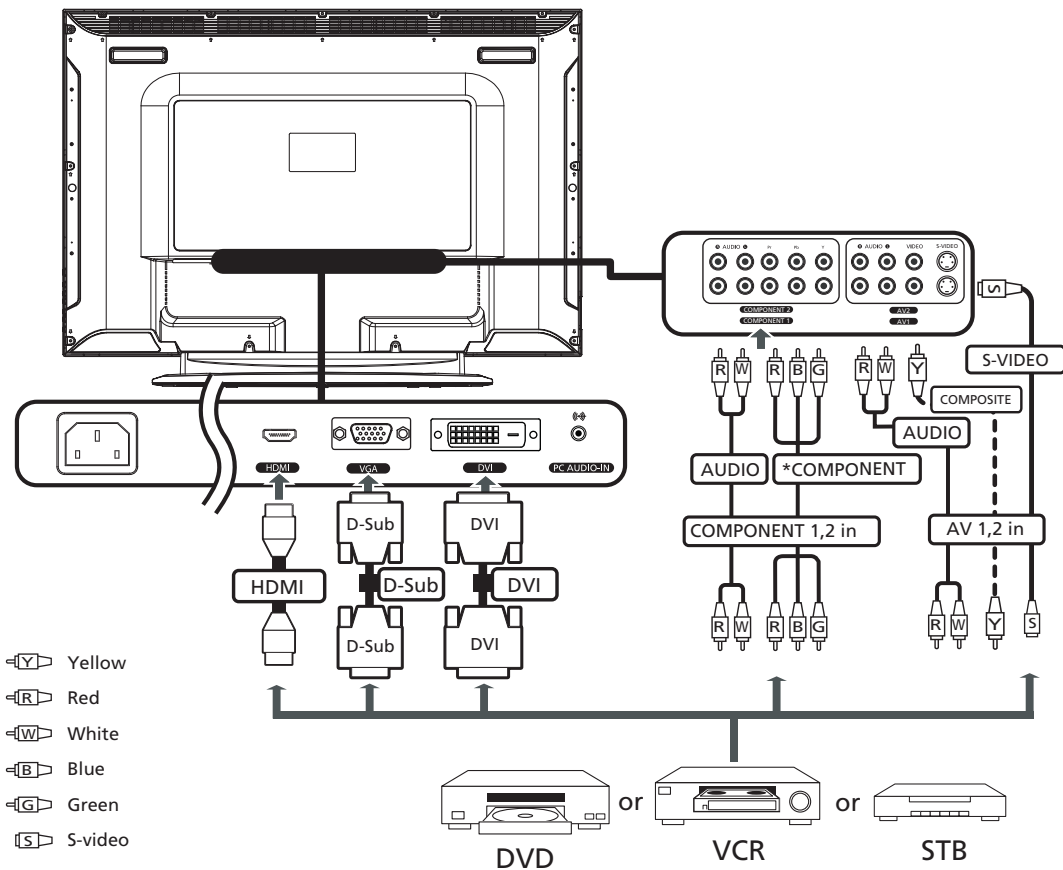
## Connecting external audio/video device

### Connecting a DVD, VCR, STB or audio/video equipment

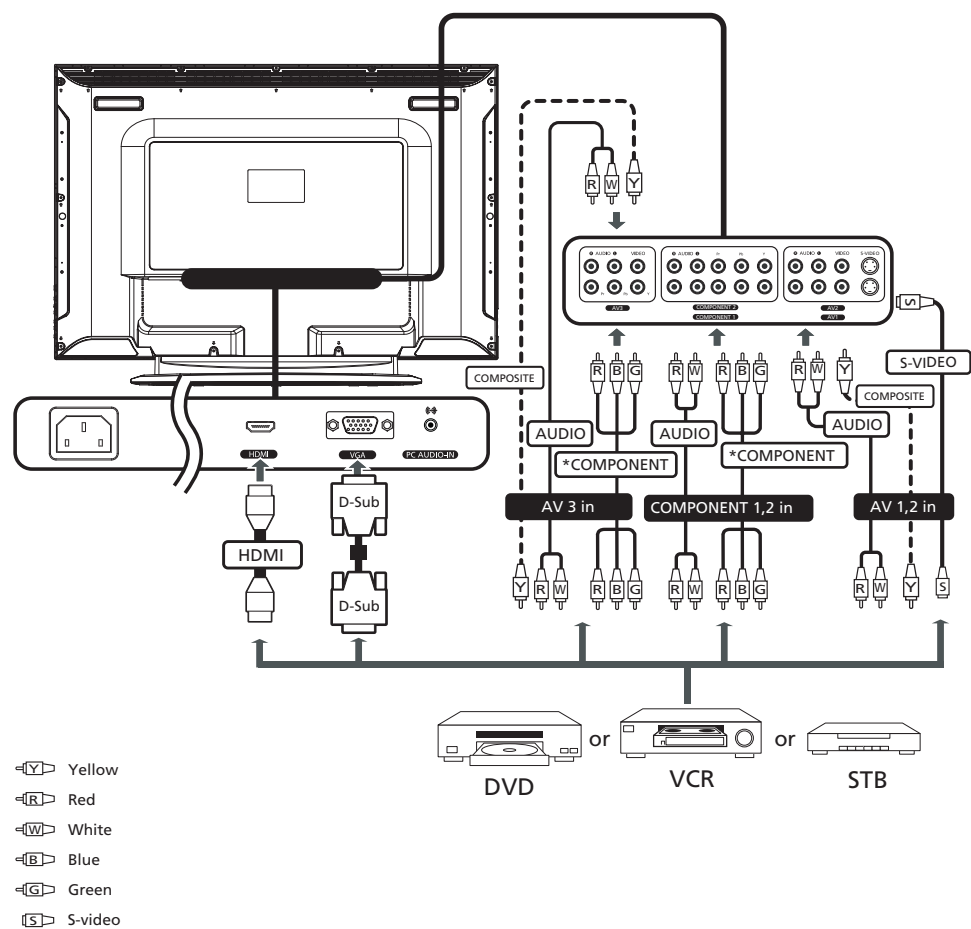
Connect your DVD player, VCR or audio/video equipment using the SCART port located at the rear of your LCD TV as shown below.

For AT3220A:

Source-IN

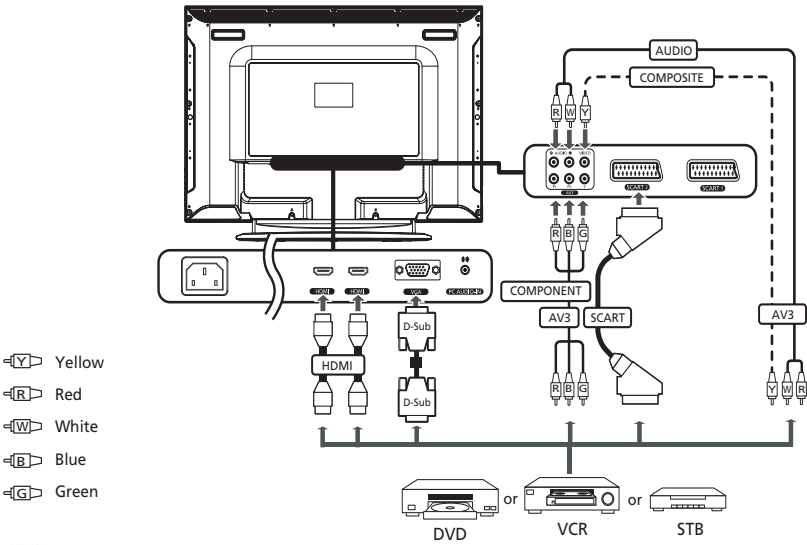


**NOTE:** Acer recommends the following priority for connection types: HDMI -> DVI -> D-Sub -> COMPONENT -> S-Video -> Composite.



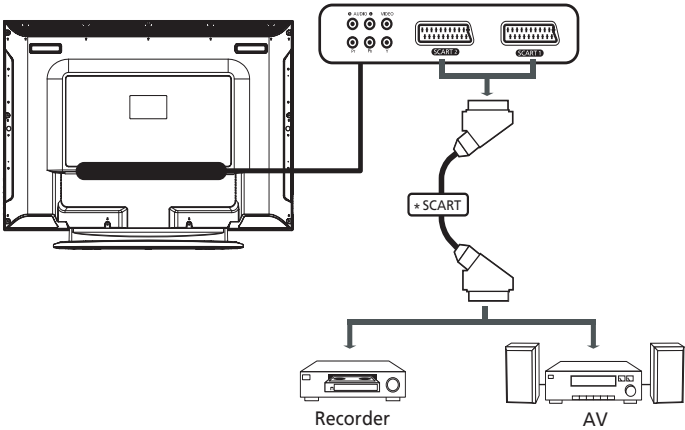
For AT3220:

Source-IN



\* Acer recommends the following priority for connection types:  
HDMI -> COMPONENT -> SCART -> Composite.

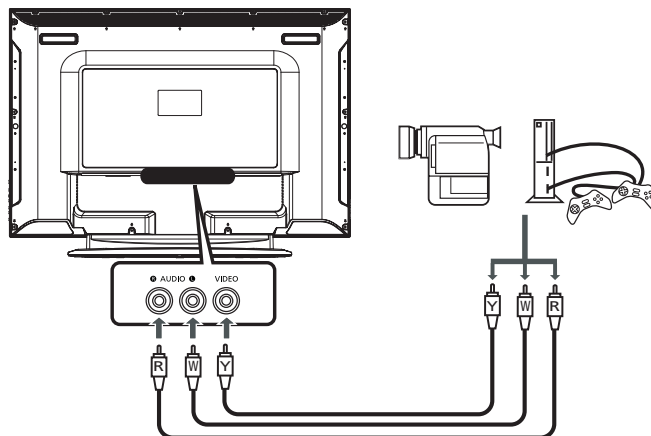
TV-OUT



\*SCART-out only works with analog broadcasts.

### Connecting a camera, camcorder, video am or headphones

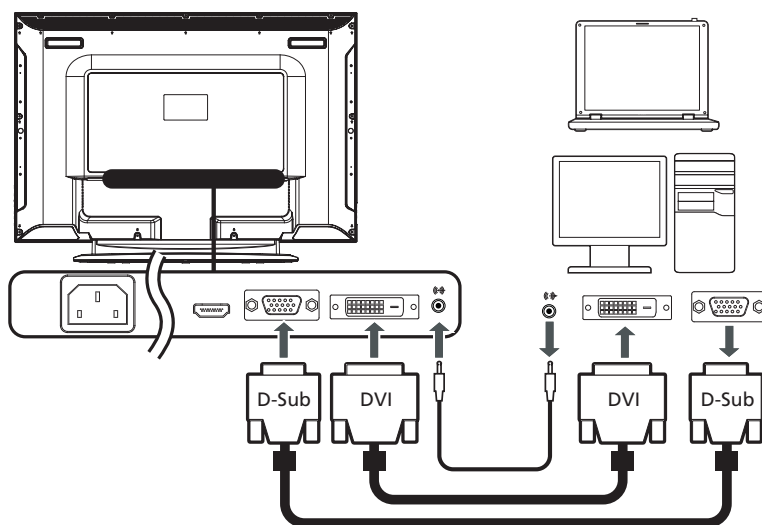
Connect your camera or camcorder to the video/audio ports on the rear of the TV set as shown below.



## Connecting a PC or notebook computer

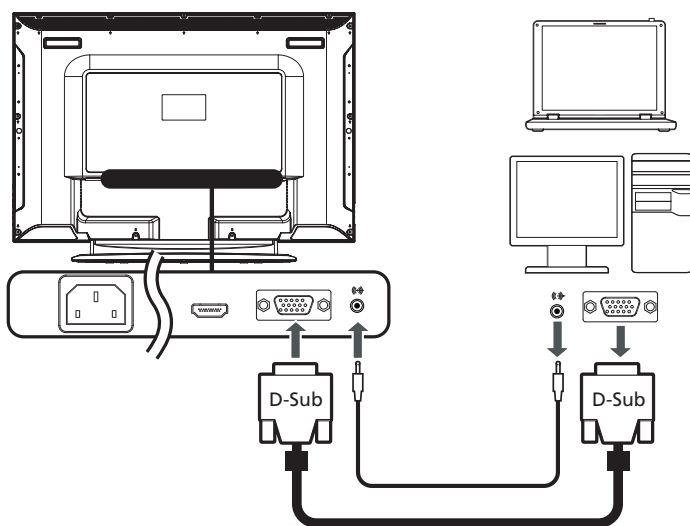
To display PC output on your TV, connect your PC or notebook computer to the TV as shown below.

**For AT3220A:**

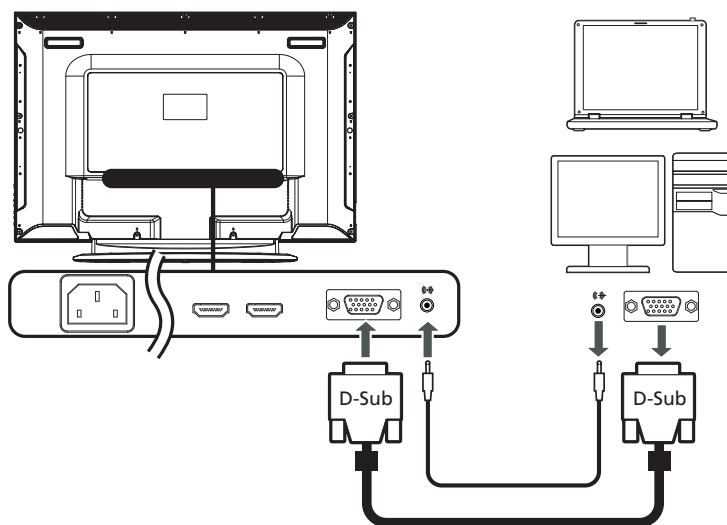


**NOTE:** For VGA and DVI input, Acer recommends setting your PC's external monitor resolution to 1360 x 768 pixel @ 60 Hz.

**For AT3220B:**



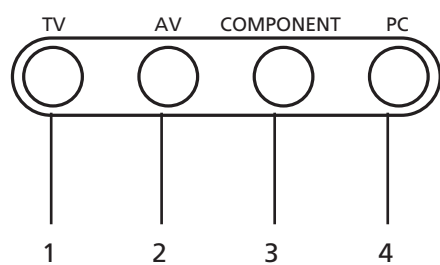
**For AT3220:**



## Selecting the input source

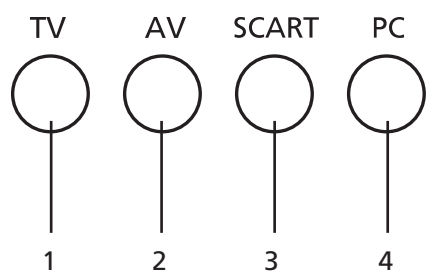
Once you have connected your antenna or external equipment to the TV, you need to select the correct input source. Press the corresponding button on the remote control to select the correct input source.

For AT3220A/AT3220B:



| No | Item          | Input Button Guide                                                       |
|----|---------------|--------------------------------------------------------------------------|
| 1  | TV key        | Toggle Analog TV (ATV) between input sources.                            |
| 2  | AV key        | Toggle AV1, AV2, AV3-CVBS* and HDMI between input sources.               |
| 3  | COMPONENT key | Toggle COMPONENT 1, COMPONENT2 and AV3-COMPONENT* between input sources. |
| 4  | PC key        | Toggle VGA between input sources.                                        |

For AT3220:



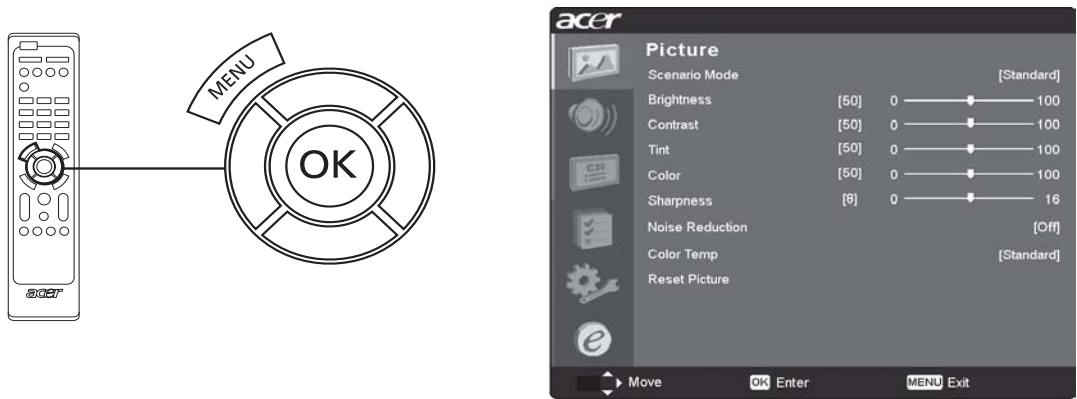
| No | Item          | Input Button Guide                                                       |
|----|---------------|--------------------------------------------------------------------------|
| 1  | TV key        | Toggle Analog TV (ATV) between input sources.                            |
| 2  | AV key        | Toggle AV1, AV2, AV3-CVBS* and HDMI between input sources.               |
| 3  | COMPONENT key | Toggle COMPONENT 1, COMPONENT2 and AV3-COMPONENT* between input sources. |
| 4  | PC key        | Toggle VGA between input sources.                                        |

# OSD navigation

Many of the advanced settings and adjustments are available through using the OSD (onscreen display) menus, as shown in the example screenshot below.

Basic operations required to navigate these menus (Picture, Audio, Channel management, Options, Settings and Empowering) are described in this section.

## Navigating the OSD with the remote control



**NOTE:** You can also interact with these menus using the front panel controls. Please see “Front panel view” section for AT3220A.

| No.                                                                                                                                                              | Icon or Display | Description                                                                                                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| There are six main OSD menus. These are: Picture, Audio, Channel management, Options, Settings and Empowering. Use the following method to navigate these menus. |                 |                                                                                                                                                                                                                                                                                      |
| 1                                                                                                                                                                |                 | Press the <b>MENU</b> button on the remote control or the <b>MENU</b> button on the control panel.                                                                                                                                                                                   |
| 2                                                                                                                                                                |                 | Select your desired menu by using the up and down <b>directional keys</b> to switch between the six menus.                                                                                                                                                                           |
| 3                                                                                                                                                                |                 | Use the directional keys to interact with the menu. The up / down directions will scroll through the menu options, while left / right will adjust the different settings (for example, in the Picture menus, settings such as brightness, contrast, etc.) Press <b>MENU</b> to exit. |

## Adjusting the OSD settings

The OSD can be used for adjusting the settings of your LCD TV.

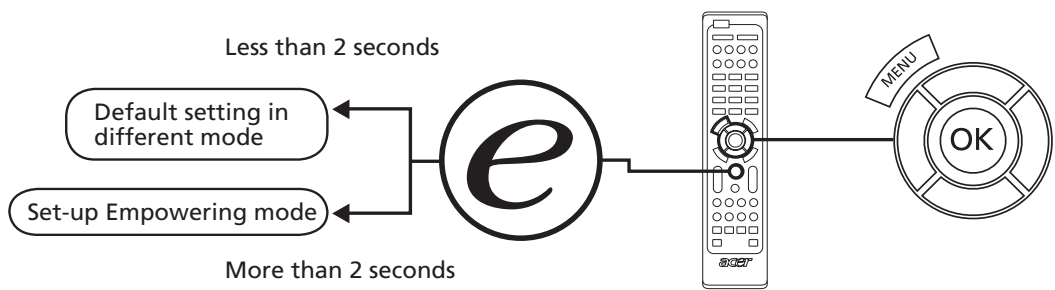
Press the MENU key to open the OSD. You can use the OSD to adjust the picture quality, audio settings, channel settings, options, general settings, and Empowering Technology. For advanced settings, please refer to following page:

| Adjusting the picture quality                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|    | <ol style="list-style-type: none"><li>1 Press the <b>MENU</b> key to bring up the OSD.</li><li>2 Using the directional keys, select <b>Picture</b> from the OSD. Then navigate to the picture element you wish to adjust.</li><li>3 Use the left or right keys to adjust the sliding scales.</li><li>4 The <b>Picture</b> menu can be used to adjust the current Scenario mode, brightness, contrast, color, sharpness and other image-related qualities.</li></ol>         |
| Adjusting the audio settings                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|    | <ol style="list-style-type: none"><li>1 Press the <b>MENU</b> key to bring up the OSD.</li><li>2 Using the directional keys, select <b>Audio</b> from the onscreen display. Then navigate to the feature you wish to adjust.</li><li>3 Use the left or right keys to adjust the sliding scale. Press <b>OK</b> to save.</li><li>4 The <b>Audio</b> menu can also be used to adjust the treble, balance, sound effects and other important sound-related settings.</li></ol> |
| Adjusting the channel management                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|  | <ol style="list-style-type: none"><li>1 Press the <b>MENU</b> key to bring up the OSD.</li><li>2 Using the directional keys, select <b>Channel management</b> from the OSD.</li><li>3 Use the directional keys to navigate the menus.</li><li>4 The <b>Channel management</b> menu can be used to set channel skipped, select TV system and scan channels automatically.</li></ol>                                                                                          |
| Adjusting other options                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|  | <ol style="list-style-type: none"><li>1 Press the <b>MENU</b> key to bring up the OSD.</li><li>2 Using the directional keys, select <b>Options</b> from the OSD.</li><li>3 Use the directional keys to navigate the menus.</li><li>4 The <b>Options</b> menu can be used to select the picture aspect-ratio mode, set the sleep timer and other important options.</li></ol>                                                                                                |
| Adjusting the settings                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|  | <ol style="list-style-type: none"><li>1 Press the <b>MENU</b> key to bring up the OSD.</li><li>2 Using the directional keys, select <b>Settings</b> from the OSD. Then navigate to the feature you wish to adjust.</li><li>3 The <b>Settings</b> menu can be used to adjust the menu language and other important settings.</li></ol>                                                                                                                                       |

---

**NOTE:** The options available on the OSD may vary depending on the TV signal source.

# Empowering Technology



The Empowering Key opens up the Acer Empowering Technology functions. In TV mode, the choice is between Scenario mode and Favorite channel.

## Set-up Empowering mode

To change your Empowering Key's default setting:

|   |  |                                                                                                            |
|---|--|------------------------------------------------------------------------------------------------------------|
| 1 |  | Press and hold the <b>Empowering Key</b> for more than <b>two seconds</b> to open the menu.                |
| 2 |  | <p>More than 2 seconds</p> <p><b>TV mode</b> Empowering Key settings menu</p>                              |
| 3 |  | Press <b>MENU</b> to exit. Now, when you press the Empowering Key, your chosen selection will be accessed. |

## Default setting in different Empowering mode

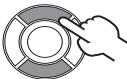
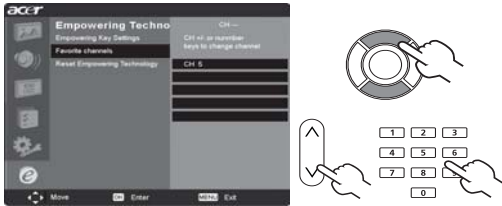
### Scenario mode in TV (default setting)

Scenario mode has five preset viewing modes designed to give you the best picture quality when watching a particular kind of program. There are five pre-defined audio and video settings for optimal enjoyment of the following scenarios: Standard TV, Movie, Sport, Concert, Game, User.

|  | Pressing the <b>Empowering Key</b> for less than <b>two second</b> will toggle between the different modes.                                                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mode                                                                              | Information                                                                                                                                                                                                                                                                                                                                                                                       |
| Standard                                                                          | Standard mode allows you to watch your favorite channels with sharp, brilliant imagery via adaptive brightness and contrast adjustments, and listen to clear-sounding audio.                                                                                                                                                                                                                      |
| Movie                                                                             | For comfortably enjoying movies at home, Movie mode displays dim scenes in clear detail; compensates for color; and smoothly presents motion images. This is accomplished through optimal Gamma correction plus saturation, brightness and contrast adjustments. Movie mode makes the most of high-definition movie soundtracks.                                                                  |
| Game                                                                              | Game mode carefully details the exquisite graphics of modern video games, providing lifelike entertainment while protecting your eyesight by adjusting brightness and contrast. What's more, Game mode provides a heightened audio experience.                                                                                                                                                    |
| Sports                                                                            | Sports mode is suited for outdoor sports programs, with accurate background depth and clear gradation between the bright, outdoor playing field and darker auditoriums. Sports mode also brilliantly enhances colors and presents swiftly moving pictures without residual images. All of this is achieved via specific Gamma corrections and saturation adjustments. Precise audio can be heard. |
| Concert                                                                           | Concert mode places you in a virtual concert hall, opera house or other dim environment by means of adaptive brightness and contrast adjustments. Concert mode accentuates symphonic harmonies and the tenor audio range.                                                                                                                                                                         |

### Favorite channel mode in TV

Favorite channel allows you to store five of your favorite TV channels and flick between them at the touch of a single button. To set Favorite channel as the default, follow the steps on page 26.

| Storing favorite channels      |                                                                                     |                                                                                                                                                                                                  |
|--------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                              |  | Select your desired channel, then press the <b>MENU</b> key on the remote control.                                                                                                               |
| 2                              |  | Use the <b>directional keys</b> to navigate the menu and select the Empowering Technology icon.                                                                                                  |
| 3                              |  | Navigate to a channel slot, use CH up/down button or number key to change channel.<br><br>There are a total of five slots in which you can store TV programs.                                    |
| Viewing your favorite channels |                                                                                     |                                                                                                                                                                                                  |
|                                |  | On the remote control, if you press the <b>Empowering Key</b> for less than two second, the TV will toggle between the five stored TV channels sequentially according to your list of favorites. |

# OSD Navigation

Many of the advanced settings and adjustments are available through using the OSD (on screen display) menus, as shown in the example screenshot below.



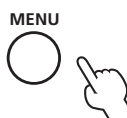
Basic operations required to navigate these menus (Picture, Audio, Settings, Options, Empowering) are described in this section. The first time you access the OSD, you will be asked to choose your language settings.

**NOTE:** You can also interact with these menus using the front panel controls.

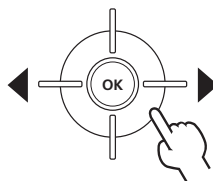
Navigating the OSD with Remote Control

There are five main OSD menus. These are: Picture , Audio , Settings , Options  and Empowering . Use the following method to easily navigate these menus.

1. Press the “Menu” button on the remote control or the “Menu” button on the control panel.



2. Select your desired menu by using the Left/Right sides of the directional pad to switch between the five menus.



3. Use the directional pad to interact with the menu. The Up/Down directions will scroll through the menu options, while Left/Right will adjust the different settings (for example, in the Picture menu, settings such as brightness, contrast, etc). If there are no adjustments, press Enter to select.

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## Teletext

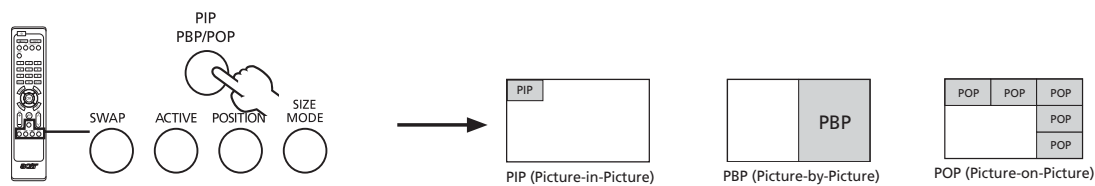
Most TV channels also broadcast information via the teletext feature. This Acer LCD TV has 252 pages of memory which will store pages and subpages, thereby reducing waiting time. The teletext buttons on the remote control are listed below.

| Item                    | Description                                                          |
|-------------------------|----------------------------------------------------------------------|
| INDEX                   | Go to index page                                                     |
| SUBTITLE                | Show subtitle on the screen                                          |
| TELETEXT                | Press to switch from TV/AV to Teletext mode.                         |
| REVEAL                  | Press to reveal hidden teletext information.                         |
| SIZE                    | Press once to zoom teletext page to 2X; press again to resume.       |
| MIX                     | Press to overlay teletext page on the TV image, i.e. subtitle        |
| HOLD                    | Press to pause the current teletext page in multi-page viewing mode. |
| Color buttons (R/G/Y/B) | Operates corresponding button on the teletext page.                  |

# Advanced Features

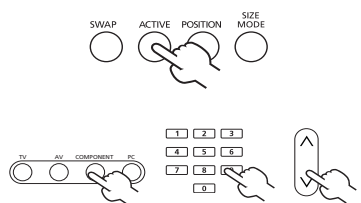
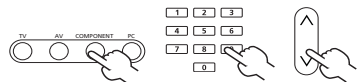
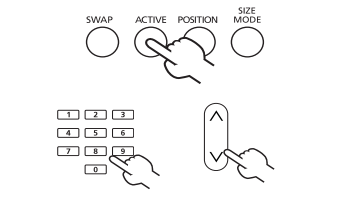
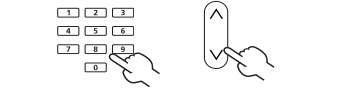
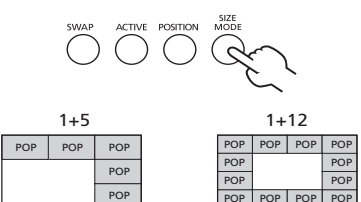
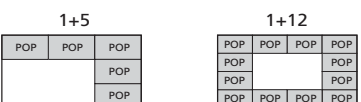
## PIP/PBP/POP

- ❑ Press the PIP/PBP button once to display activate picture-in-picture (PIP).
- ❑ Press twice to activate picture-by-picture (PBP).
- ❑ Press three times to activate picture-on-picture (POP). Then, the POP screens will display the TV Channel programs on by one.



**NOTE:** The OSD menu is not available in PIP/POP/PBP modes.

|     |  |                                                                                                                                                                |
|-----|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PIP |  | 1a. Press the <b>ACTIVE</b> key to toggle between PIP screens.                                                                                                 |
|     |  | 1b. Press the <b>TV</b> , <b>AV</b> , <b>COMPONENT</b> or <b>PC</b> keys, number keys or <b>CH</b> up or down to change the content of the active screen.      |
|     |  | 2. Press the <b>SWAP</b> key to change the content between the primary and the subscreen.                                                                      |
|     |  | 3. Press the <b>POSITION</b> key to select the location of the subscreens, from upper left -> upper right -> lower right -> lower left, as shown in the image. |
|     |  | 4. Press the <b>SIZE/MODE</b> key to select the size of the subscreen, from 25% -> 37.5% -> 50%, as shown in the image.                                        |

|     |                                                                                    |                                                                                                                                                           |
|-----|------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| PBP |   | 1a. Press the <b>ACTIVE</b> key to toggle between PBP screens.                                                                                            |
|     |   | 1b. Press the <b>TV</b> , <b>AV</b> , <b>COMPONENT</b> or <b>PC</b> keys, number keys or <b>CH</b> up or down to change the content of the active screen. |
| POP |   | 1a. Press the <b>ACTIVE</b> key to toggle between POP screens.                                                                                            |
|     |   | 1b. Press the number keys or <b>CH</b> up or down to change the TV channel on the active screen.                                                          |
| POP |  | 2. Press the <b>SIZE/MODE</b> key to access the 1 + 5 or 1+12 picture-on-picture mode as shown in the image.                                              |
|     |  |                                                                                                                                                           |

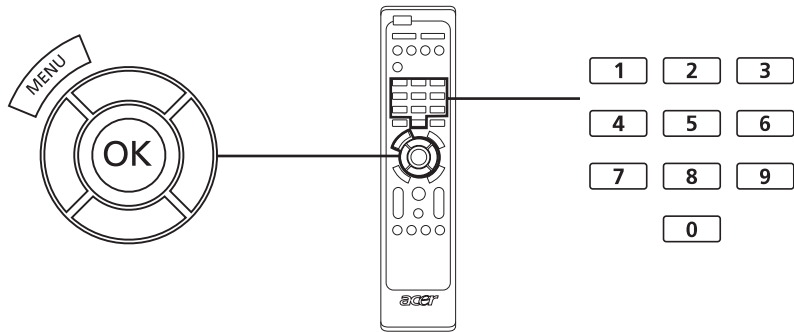
**NOTE:** In PIP and PBP, the VGA and DVI sources only support input up to 1360x768 pixels at 60Hz. For resolutions higher than this, “Out of Range” will be displayed.

**NOTE:** The POP can only support 1+12 when the main screen source is HD content or in VGA mode.

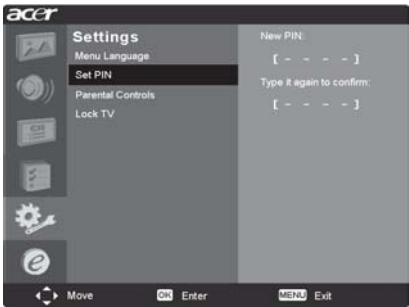
## Lock TV

### Locking TV content

Lock TV allows you to enter a password and effectively stop anyone without the password from watching TV..



to enable this feature:

| Setting a personal PIN |                                                                                                                                                                               |                                                                                                                                                                                             |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1                      |                                                                                              | <div></div> <p>Press the <b>MENU</b> key on the remote control to bring up the OSD.</p>                    |
| 2                      |                                                                                              | Use the <b>directional keys</b> to navigate to the  Settings menu. Then select <b>Set PIN</b> . (see note) |
| 3                      | <div></div> | Enter a four-digit password. Type it again and press <b>OK</b> to reconfirm.                                                                                                                |
| 4                      |                                                                                              | Press <b>MENU</b> to exit.                                                                                                                                                                  |

| Locking your TV |                                                                                                                                                                                   |                                                                                                                                                                                    |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1               |                                                                                                | <div></div> <p>Press the <b>MENU</b> key on the remote control to bring up the OSD.</p>         |
| 2               |                                                                                                | Use the <b>directional keys</b> to navigate to the  Settings menu. Then select <b>Lock TV</b> . |
| 3               | <div></div> | Enter your PIN. Type it again and press <b>OK</b> to reconfirm. (see page 16 note)                                                                                                 |

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# Hardware Specifications and Configurations

## Electro / Optical

|     |                                                  |                                                    |                 |       |
|-----|--------------------------------------------------|----------------------------------------------------|-----------------|-------|
| 1.  | Size of screen                                   | 32 inches for AT320A/AT3220B/AT3220                |                 |       |
| 2.  | LCD panel supplier                               | AUO                                                |                 |       |
| 3.  | Screen aspect ratio                              |                                                    |                 |       |
| 4.  | Type of screen                                   | TFT with Super MVA technology or SIPS or QSV       |                 |       |
| 5.  | Screen resolution                                | 1366 x 768                                         |                 |       |
| 6.  | Display colors                                   | 16.7 M colors (8 real bits per color)              |                 |       |
| 7.  | Chromaticity                                     | Red                                                | 0.638           | 0.335 |
|     |                                                  | Green                                              | 0.271           | 0.597 |
|     |                                                  | Blue                                               | 0.145           | 0.065 |
|     |                                                  | White                                              | 0.275           | 0.298 |
| 8.  | Color temperature                                | Five models are adjustable,                        |                 |       |
|     |                                                  | Cold                                               | 16,000 degree K |       |
|     |                                                  | Middle-cold                                        | 14,000 degree K |       |
|     |                                                  | Standard                                           | 12,000 degree K |       |
|     |                                                  | Middle-warm                                        | 10,000 degree K |       |
|     |                                                  | Warm                                               | 8,000 degree K  |       |
| 9.  | White uniformity                                 | N/A                                                |                 |       |
| 10. | White dispersion                                 | N/A                                                |                 |       |
| 11. | Brightness                                       | 500 Cd/m <sup>2</sup> (typical)                    |                 |       |
| 12. | Contrast Ration                                  | 1200:1 (typical)                                   |                 |       |
| 13. | Uniformity                                       | N/A                                                |                 |       |
| 14. | Overscan                                         | N/A                                                |                 |       |
| 15. | Vision angle                                     | Ultra wide viewing angle: 176 (H), 176 (V) (CR>20) |                 |       |
| 16. | Gamma                                            | N/A                                                |                 |       |
| 17. | Response time (T <sub>R</sub> / T <sub>F</sub> ) | 8 ms (gray to gray)                                |                 |       |
| 18. | Screen (lamp + LCD) life                         | 60,000 Hours (Lamp is not included)                |                 |       |
| 19. | Panel interface                                  | 1-ch LVDS                                          |                 |       |

---

## Mains

- |                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Power supply electrical specification | <p>The power supply for this product is an internal converter, with a non-replaceable fuse internally. This converter is designed to meet CE mark requirement.</p> <ul style="list-style-type: none"><li>• Input voltage and frequency range:</li></ul> <p>The operating range of line voltage is AC 90 volts to 264 volts, 47Hz to 63 Hz.</p> <ul style="list-style-type: none"><li>• Input current: 2.2A</li><li>• Line fuse:</li></ul> <p>The AC input is fused and becomes electrically open as a result of an unsafe current condition. This fuse is inside the power supply converter and is not use replaceable, and must be returned for replacement. This fuse is well selected to handle inrush current for all combinations of line voltage and frequency.</p> |
| 2. Stand-by consumption                  | 5 watts (max)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 3. Power consumption                     | 185 Watts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 4. Mains disturbance behaviour           | <p>No disjunction during 0 to 40ms mains interrupt, with max load, min mains voltage.</p> <p>No software reboot during the test.</p> <p>No over voltage causing any damage during mains interrupt (0 to any time).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 5. Inverter                              | <p>The inverter which is used to light up backlight of LCD panel is well designed to meet requirement of panel specification.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

## Audio / Acoustical

- |                                   |                                                                                                                                                                                                                                                                                        |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Audio input                    | <p>Level: 500 mVrms<br/>Type: Stereo R/L Channels<br/>Impedance: More than 22 K ohm<br/>Interface: RCA Jack, R: Red color, L: White color</p>                                                                                                                                          |
| 2. PC Stereo Input                | <p>Level: 500 mVrms<br/>Type: Stereo R/L Channels<br/>Impedance: More than 22 K ohm<br/>Interface: 3.5mm stereo jack</p>                                                                                                                                                               |
| 3. Built-in Speaker               | <p>Max. audio output (at 10% THD max.) at 500 Vrms / 1KHz input: 8W + 8W<br/>Sound Distortion at 250 mW / KHz: 1% THD max.<br/>Speaker: 20W (10W + 10W)<br/>Speaker impedance: 4 ohm at 1KHz<br/>Residual Hum at Min. Volume: 500 uW Max.<br/>Max Hum at Max. Volume: 1000 uW Max.</p> |
| 4. acoustical noise (complete TV) | <p>Audible noise in standby mode &lt;35dBA (ISO-7779)<br/>Audible noise in power ON mode &lt;35dBA (ISO-7779)<br/>Parasitic noise due to mechanical vibration during audio sweep must be inaudible at 1m around the TV.</p>                                                            |

## Hard / Soft Performance

1. Languages supported Czech, Danish, Dutch, English, French, German, Italian, Polish, Portuguese, Russian, Spanish and Swedish
2. Starting time A correct picture (color, aspect ratio, stability) can be displayed <6 second after power on
3. Wake-up behaviour The system can be waken up if the button Standby is pressed (keypad "power" or remote control "power", "0 ~ 9", "CH +/-").
4. Stand-by reason The TV pass in standby mode upon:
  - The button "power" is pressed (keypad or remote control).
  - On the selected source: no sync signal after 8 minutes.
5. Video and Audio Characteristics

| No. | PARAMETER ( Channel: 11 )                 |          | MIN. | TYP. | MAX. | UNIT  | NOTE |
|-----|-------------------------------------------|----------|------|------|------|-------|------|
| 1   | Video output level                        |          | 0.8  | 1.0  | 1.2  | Vp-p  | 1    |
| 2   | Video S/N                                 |          | 44   | 48   | -    | dB    | 2    |
| 3   | Noise limiting sensitivity                |          | -    | 44   | 49   | dBuV  | 3    |
| 4   | Video amplitude frequency characteristics | 1.0 MHz  | -2.0 | 0    | +2.0 | dB    | 4    |
|     |                                           | 2.0 MHz  | -2.0 | 0    | +2.0 | dB    |      |
|     |                                           | 3.0 MHz  | -3.0 | -0.5 | +1.0 | dB    |      |
|     |                                           | 3.58 MHz | -4.5 | -1.5 | +0.5 | dB    |      |
| 5   | Audio output level                        | 140      | 140  | 290  | 440  | mVrms | 5    |
| 6   | Audio S/N                                 |          | 40   | 48   | -    | dB    | 6    |

6. Scanning mode
 

Automatic:

Manual:

- Multi-standard, frequency based
  - Level range: 55dBuV to 100dBuV
  - Abort possible during scanning process
  - Frequency setting is available.
7. Analog TV naming function
 

Automatic:

Manual:

CNI recognition

5 characters
8. PIP / POP / PBP function
 

PIP

PIP multiple size

PIP multiple position

POP

POP source

POP (main + sub)

20%, 30%

4 corners

video / graphic (main) by ATV (sub)

1 + 5, 1 + 12

### Multi Picture

AT3220 series only supports video on graphic (VGA) multi-picture function. The configuration for multi-picture is listed and described as following:

## PIP/PBP

| Main<br>Sub | TV | AV1 | AV2 | HDMI | Component 1 | Component 2 | VGA | DVI |
|-------------|----|-----|-----|------|-------------|-------------|-----|-----|
| TV          | X  | X   | X   | X    | X           | X           | O   | X   |
| AV1         | X  | X   | X   | X    | X           | X           | O   | X   |
| AV2         | X  | X   | X   | X    | X           | X           | O   | X   |
| HDMI        | X  | X   | X   | X    | X           | X           | O   | X   |
| Component 1 | X  | X   | X   | X    | X           | X           | O   | X   |
| Component 2 | X  | X   | X   | X    | X           | X           | O   | X   |
| VGA         | O  | O   | O   | O    | O           | O           | X   | O   |
| DVI         | X  | X   | X   | X    | X           | X           | O   | X   |

O: support  
X: not support

## POP (1+5, 1+12) Main and Sub Screen Combination

| Main<br>Sub | TV | AV1 | AV2 | HDMI | Component 1 | Component 2 | VGA | DVI |
|-------------|----|-----|-----|------|-------------|-------------|-----|-----|
| TV          | X  | X   | X   | X    | X           | X           | O   | X   |
| AV1         | X  | X   | X   | X    | X           | X           | X   | X   |
| AV2         | X  | X   | X   | X    | X           | X           | X   | X   |
| HDMI        | X  | X   | X   | X    | X           | X           | X   | X   |
| Component 1 | X  | X   | X   | X    | X           | X           | X   | X   |
| Component 2 | X  | X   | X   | X    | X           | X           | X   | X   |
| VGA         | X  | X   | X   | X    | X           | X           | X   | X   |
| DVI         | X  | X   | X   | X    | X           | X           | X   | X   |

### 9. TTX level

- FLOF level 1.5 source can be RF, DVBT or AV.
- TTX characters set must follow the country language selection.

### 10. TTX keys function

Full screen, Subtitle, Hold, Size, 4 color keys (R, G, Y, B)

### 11. Video standard supported

- PAL, SECAM (automatic detection)
- PAL (4.43 M, 50Hz) B G D K
- SECAM L

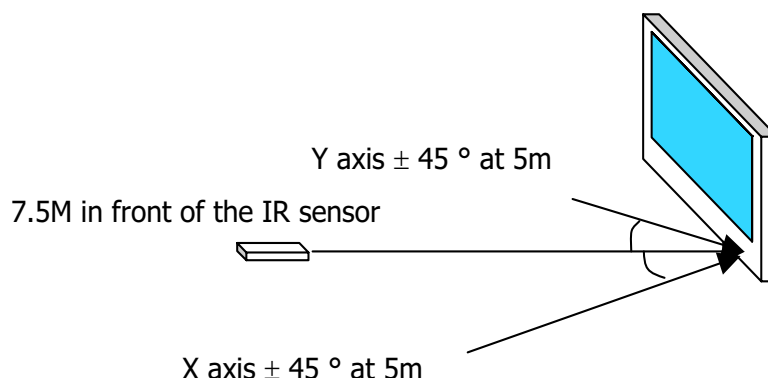
### 12. Video ADC and processing

- 10 bits (chroma and luma)
- Luma / chroma AGC
  - 10 bits processing
  - Noise reduction
  - Chroma transient improvement
  - Luma transient improvement
  - 3D comb filter
  - De-interlacer

### 13. Time to synchronize

During a source / channel change, within 4 second to obtain a stable display

|                                |                                                                                                                                                                                                                                                                                                                      |
|--------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 14. Video management           | <ul style="list-style-type: none"> <li>• User adjustments: contrast, brightness, color, tint (NTSC), sharpness</li> <li>• Color temperature: cold, middle-cold, standard, middle-warm, warm</li> </ul>                                                                                                               |
| 15. Aspect ratio               | <ul style="list-style-type: none"> <li>• Aspect ratio available for all the video sources</li> <li>• 4/3, 16/9, panorama, letterbox1, letterbox2, letterbox3</li> </ul> <p><b>NOTE:</b> PC &amp; DVI only support 4/3 &amp; 16/9</p>                                                                                 |
| 16. Scenario functions         | Settings: Standard, movie, sport, concert, game, user<br>Noise reduction: Off, Low, Middle, High                                                                                                                                                                                                                     |
| 17. Audio management           | User adjustment: Volume, Balance, Bass, Treble, Mute, Mono / Stereo / Sound1 / Sound2                                                                                                                                                                                                                                |
| 18. Audio enhancement          | Stereo, SRS, WOW, BBE                                                                                                                                                                                                                                                                                                |
| 19. AV sub-format supported    | CVBS, YC, RGB, YUV                                                                                                                                                                                                                                                                                                   |
| 20. Copy protection management | HDCP (HDMI)                                                                                                                                                                                                                                                                                                          |
| 21. IR performance             | The reception distance indicates the distance between IR emitter and receptor which allow to recognize 85% or more IR frames.<br>Reception distance: <ul style="list-style-type: none"> <li>&gt;7.5M perpendicular to the IR sensor</li> <li>&gt;5M at 45° horizontally</li> <li>&gt;5M at 45° vertically</li> </ul> |



## Connectors

|                |                                 |
|----------------|---------------------------------|
| 1. Tuner type  | Analog tuner in                 |
| 2. AV1 in      | CVBS, S-video, Audio R/L        |
| 3. AV2 in      | CVBS, S-video, Audio R/L        |
| 4. Component1  | YCbCr/YPbPr, Audio R/L          |
| 5. Component2  | YCbCr/YPbPr, Audio R/L          |
| 6. DVI-D       | Yes (HDCP)                      |
| 7. HDMI        | 19 pins HDMI signal link (HDCP) |
| 8. PC D-sub in | Yes                             |
| 9. PC Audio in | Yes                             |

---

## Environmental Requirements

The TV shall meet the following environmental requirements under normal operating conditions.

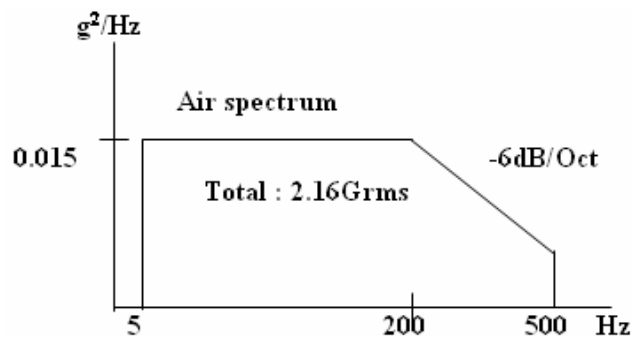
- |                         |                                                                                                                                                                                                                                                                           |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Operating            | 25° +/- 5° for purity, white point, mis-convergence, luminance measurements and white uniformity measurement<br>Operating temperature: 0°C to 35°C<br>Operating humidity: 10% to 90% (non-condensing)                                                                     |
| 2. Storage and Shipping | Storage temperature: -20°C to 60°C<br>Shipping temperature: -20°C to 60°C<br>Storage humidity: 10% to 90% (non-condensing)<br>Shipping temperature: 10% to 90% (non-condensing)                                                                                           |
| 3. Altitude             | Operating altitude: 0 to 12,000 feet<br>Shipping altitude: 0 to 40,000 feet<br>Storage altitude: 0 to 40,000 feet<br><br>Units tested at an altitude up to 12,000 feet must operate at normal conditions without exhibiting abnormal behavior such as arcing or shutdown. |

## Transportation

### Vibration Test

The packaged display shall be capable of passing sinusoidal vibration test as specified in follows.

A. test condition as below:



B. The unit under test shall be run for a duration of 30 minute in each of following orientations.

- a. Top and bottom side (z axis)
- b. Left and right side (x axis)
- c. Front and rear side (y axis)

The unit shall suffer no visible cosmetic damage and should operate no degradation indisplay quality after test.

Additionally, prior to production and prior to implementation of any design or manufacturing change that might affect vibration performance, a minimum of 2 units shall be demonstrated to meet the requirements of specification.

---

## Drop Test

The packaged display shall be capable of passing drop test as specified in following specification without any measurable degradation in performance or detectable mechanical or cosmetic damage.

Filter: 330 Hz

Dropping way: 1 corner, 3 edges, 6 flats

Dropping height: see the table below

| Weight(kg) | Corner, edge,<br>F,R,Btm(cm) | L,R,Up side(cm) |
|------------|------------------------------|-----------------|
| 0~9        | 76                           | 76              |
| 9~1        | 61                           | 61              |
| 18~27      | 46                           | 46              |
| 27~45      | 31                           | 20              |
| 45~100     | 25                           | 15              |

## Machine Disassembly and Replacement

---

This chapter contains step-by-step procedures on how to disassemble the notebook computer for maintenance and troubleshooting.

To disassemble the computer, you need the following tools:

- ☐ Wrist grounding strap and conductive mat for preventing electrostatic discharge
- ☐ small Philips screwdriver
- ☐ flat head screwdriver
- ☐ Philips screwdriver
- ☐ tweezers

**NOTE:** The screws for the different components vary in size. During the disassembly process, group the screws with the corresponding components to avoid mismatch when putting back the components. When you remove the stripe cover, please be careful not to scrape the cover.

---

## General Information

### Before You Begin

Before proceeding with the disassembly procedure, make sure that you do the following:

1. Turn off the power to the system and all peripherals.
2. Unplug the AC adapter and all power and signal cables from the system.
3. Remove the battery pack.

---

## Disassembly Procedure Flowchart

The flowchart on the succeeding page gives you a graphic representation on the entire disassembly sequence and instructs you on the components that need to be removed during servicing. For example, if you want to remove the system board, you must first remove the keyboard, then disassemble the inside assembly frame in that order.

## Disassembling Steps

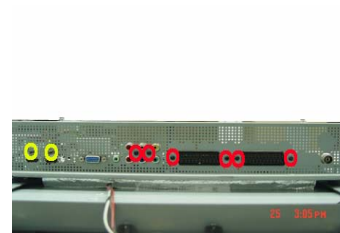
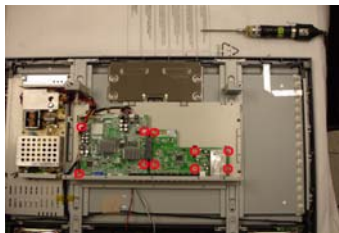
1. Remove the six screws fastening the stand to the LCD TV, then remove the stand.
2. Remove the twenty screws (10 are T4\*12 highlighted in red; 2 are M4\*8 highlighted in yellow) holding the back cover then remove the back cover carefully.
3. To remove the EMI shielding, you should remove 11 screws holding the EMI shielding. First remove two screws on the left side as shown.



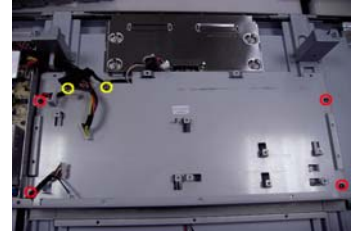
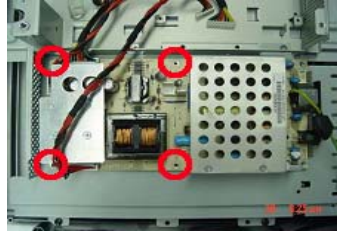
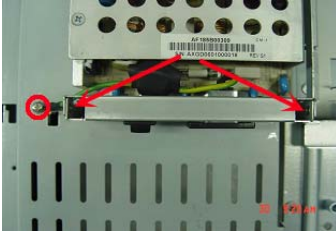
4. Remove three screws holding the EMI shielding as shown.
5. Remove two screws holding the EMI shielding on the right side as shown.
6. Remove four screws holding the EMI shielding then remove the EMI shielding.



7. Remove the 10 screws (M3\*6) fastening main board and the IO board.
8. Remove the six screws (M3\*6) and four screw nuts (highlighted in yellow) holding the main board, IO board and the PCB holder. (**Note: This step is for AT3220A**)
9. Remove the six screws (M3\*6) and two screw nuts (highlighted in yellow) holding the main board and the IO board. Then carefully detach the main board and the IO board from the main unit. (**Note: This step is for AT3220B**)



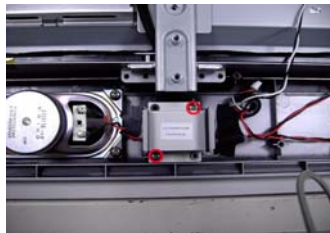
10. Remove the screw holding the power board ground cable and remove two screws (indicating by the red arrows) fastening the switch bracket. Then remove the switch bracket.
11. Remove four screws fastening the power board as show then detach the power board.
12. Remove four screws holding the PCB holder and two screws (highlighted in yellow) fastening the cables, then detach the PCB holder from the LCD TV.
13. Remove the six screws fastening the power support bracket and remove the bracket.



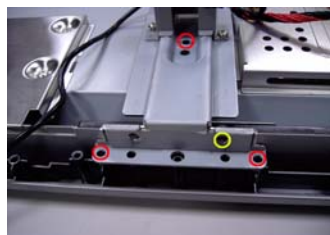
14. Remove three screws fastening the power support bracket.
15. Then remove another three screws holding the power support bracket on the right side as shown and remove the power support bracket.



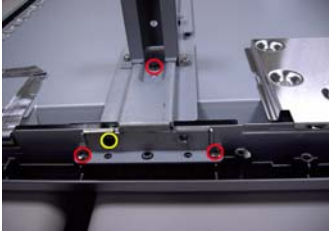
16. Remove the two screws holding the bracket on the right side as shown and remove the bracket.
17. Then remove the two screws fastening the bracket on the left side and remove the bracket.
18. Remove the eight screws (four on each side) fastening the R/L speakers and remove the speakers.



19. To remove the left LCD bracket, first remove four screws as shown.
20. Then turn to the other side to remove four screws fastening the left LCD bracket.
21. Remove four screws holding the right LCD bracket.



22. Turn to the other side to remove four screws holding the right LCD bracket as shown.
23. Remove four screws holding the LCD module to the front bezel.
24. Then you can hold the LCD brackets and take out the LCD module as shown.



25. Remove the two screws holding the IR board then disconnect the cables and remove the IR board.
26. Remove the four screws fastening the speaker on the right side.



27. Remove the four screws fastening the speaker on the left side then take out the speaker set.
28. Remove the three screws holding the button board to the main unit then disconnect the cables and remove the button board. Now you have completed the LCD TV disassembly.



**NOTE:** Before you remove the boards, please disconnect the cables on the boards.

## Troubleshooting

---

Use the following procedure as a guide for Acer LCD TV AT3220A/AT3220B and AT3220 problems.

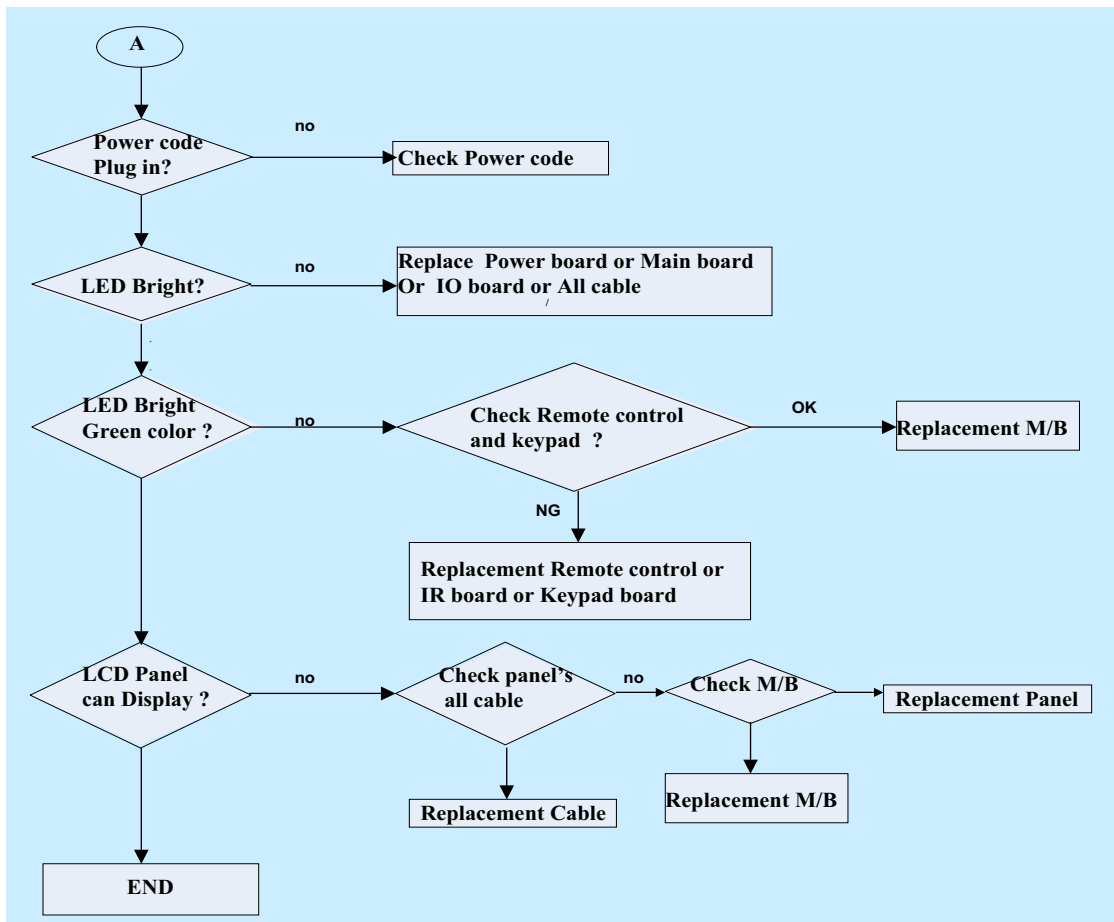
**NOTE:** The diagnostic tests are intended to test this model. Non-Acer products, prototype cards, or modified options can give false errors and invalid system responses.

1. Duplicate symptom and obtain the failing symptoms in as much detail as possible.
2. Distinguish symptom. Verify the symptoms by attempting to re-create the failure by running the diagnostic test or by repeating the same operation.
3. Disassemble and assemble the unit without any power sources.
4. If any problem occurs, you can perform visual inspection before you follow this chapter's instructions. You can check the following:
  - power cords are properly connected and secured;
  - there are no obvious shorts or opens;
  - there are no obviously burned or heated components;
  - all components appear normal.
5. Use the following flow chart determine which part to be replaced.

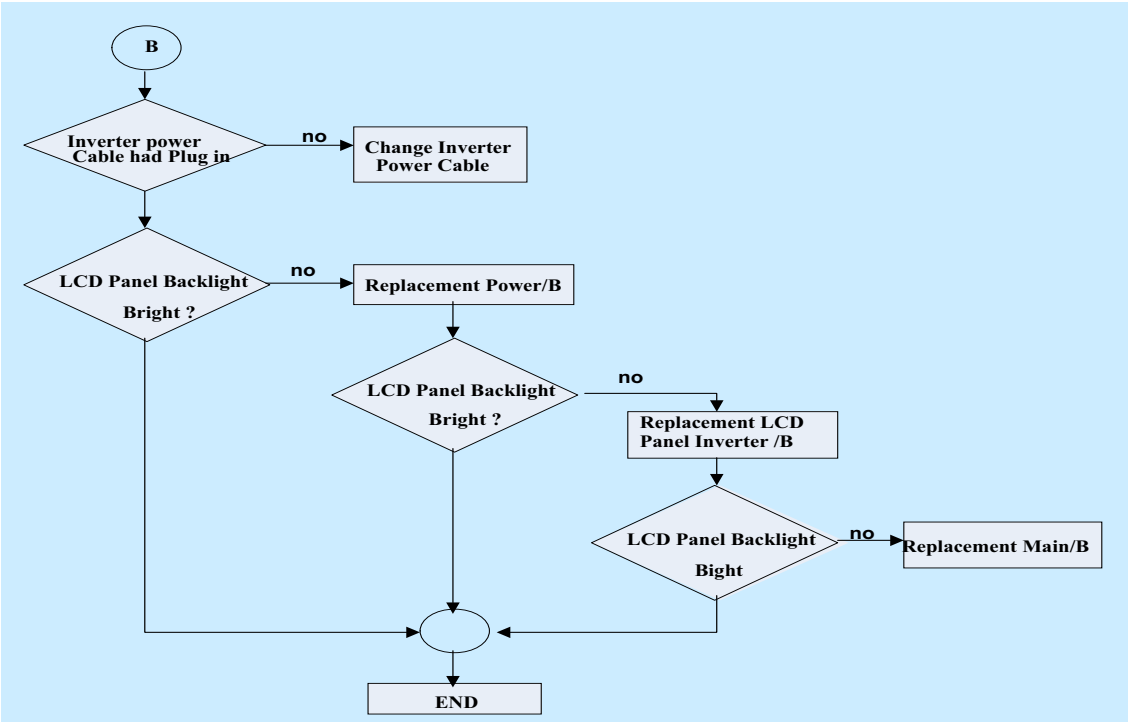
**NOTE:** N.G. in the below figures means "No Good".

# AT3220A Troubleshooting Guideline

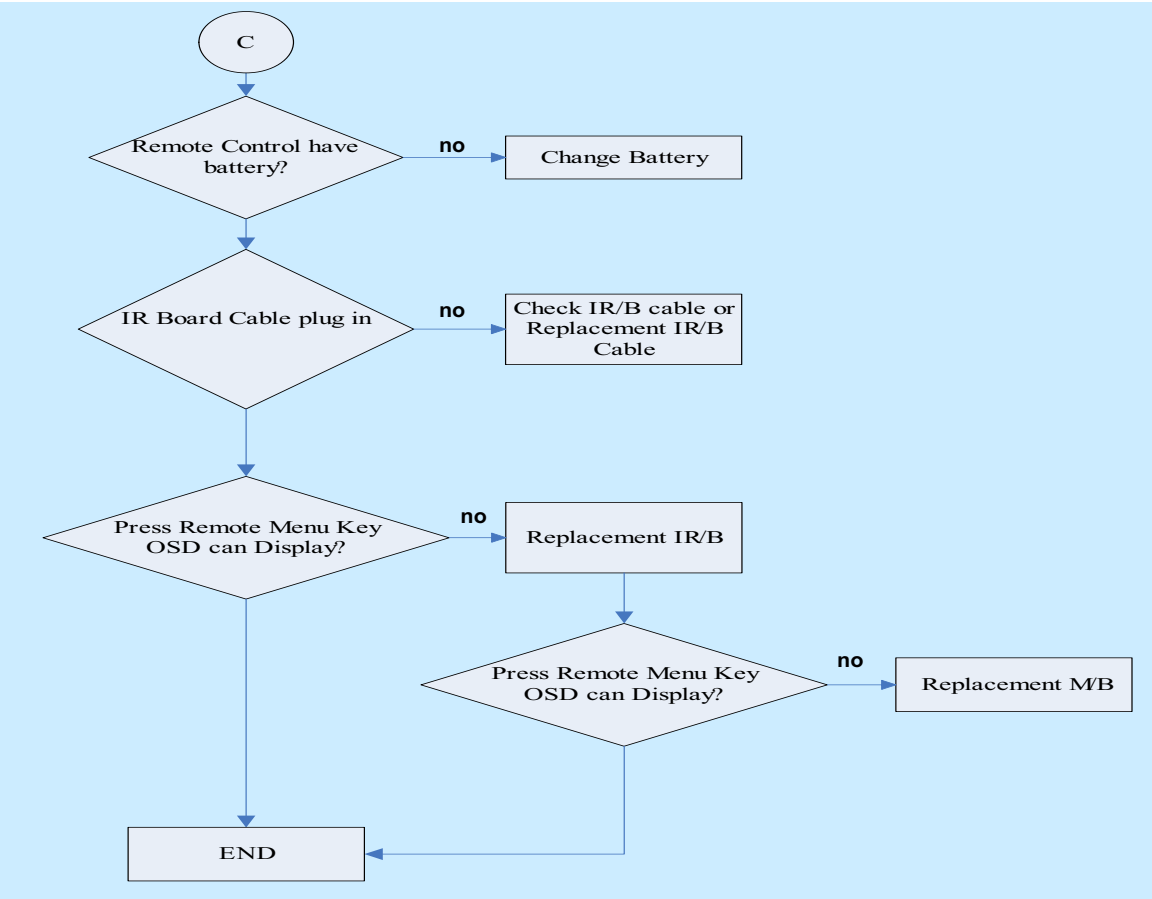
## 1. Can not power on



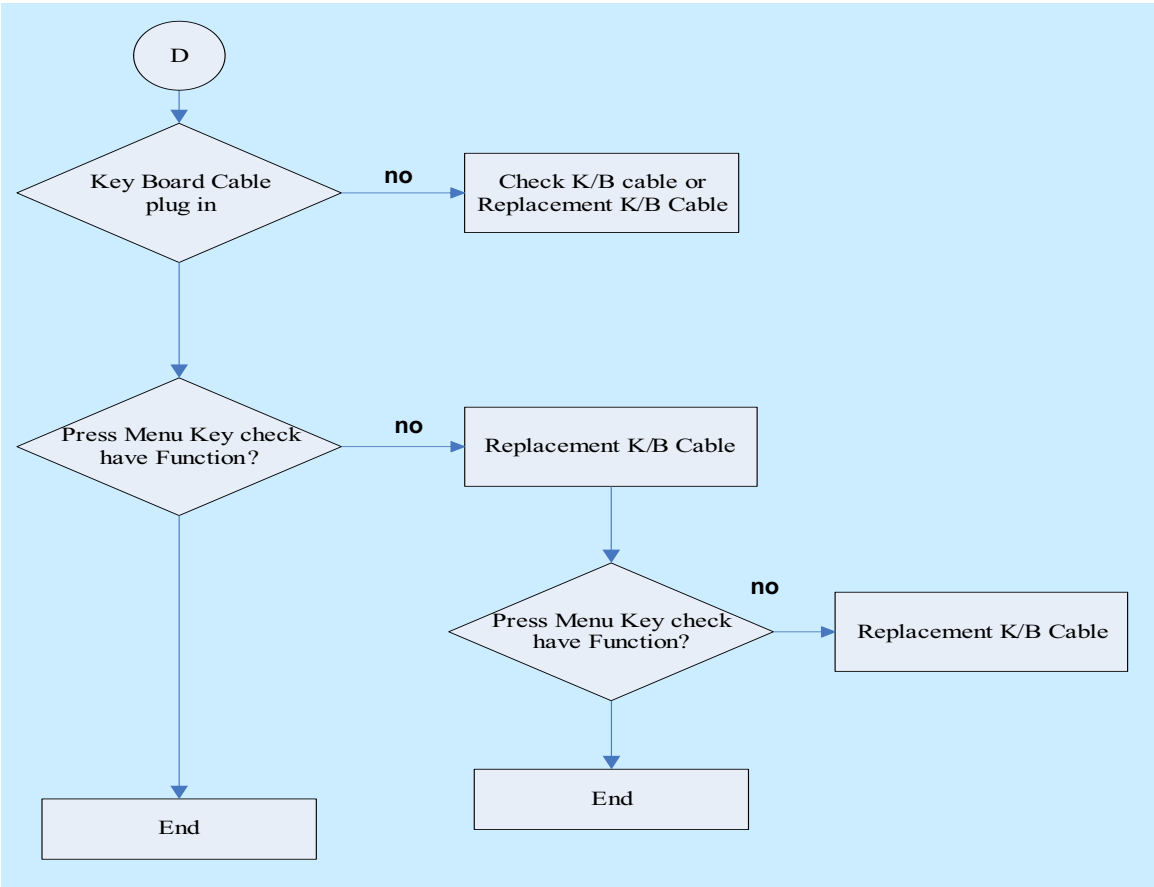
2. LCD no backligh



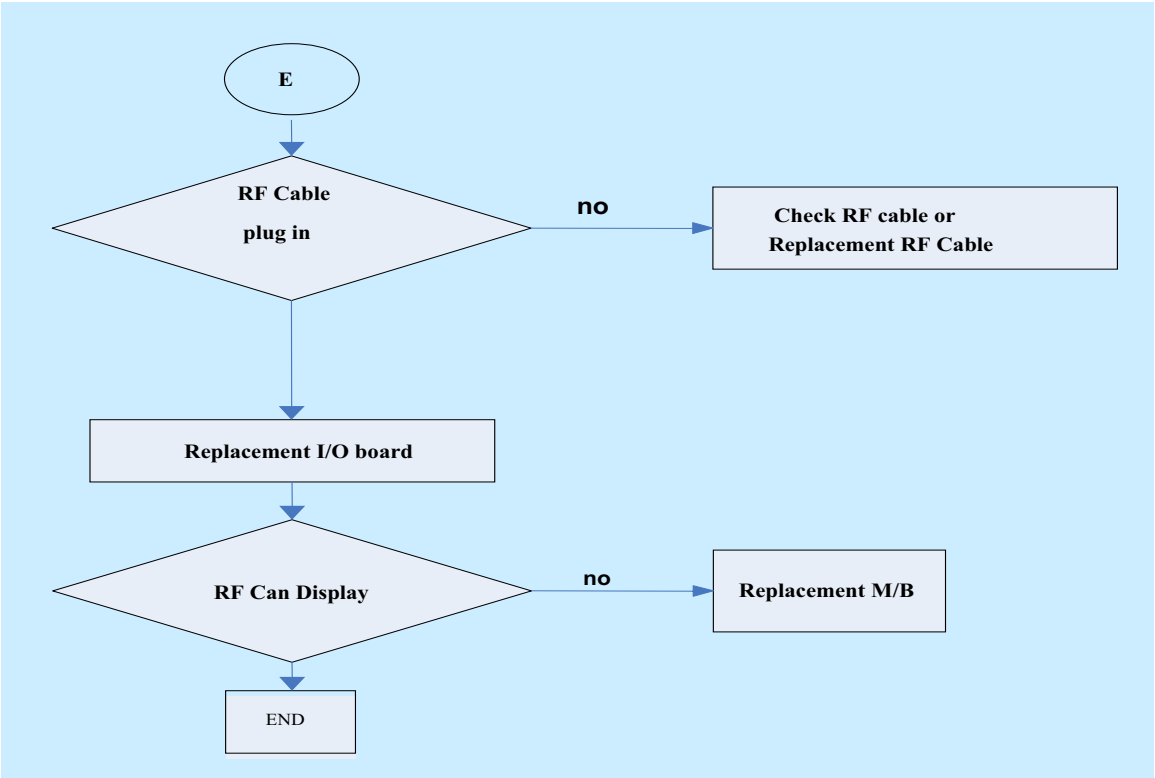
3. Remote controller does not have function



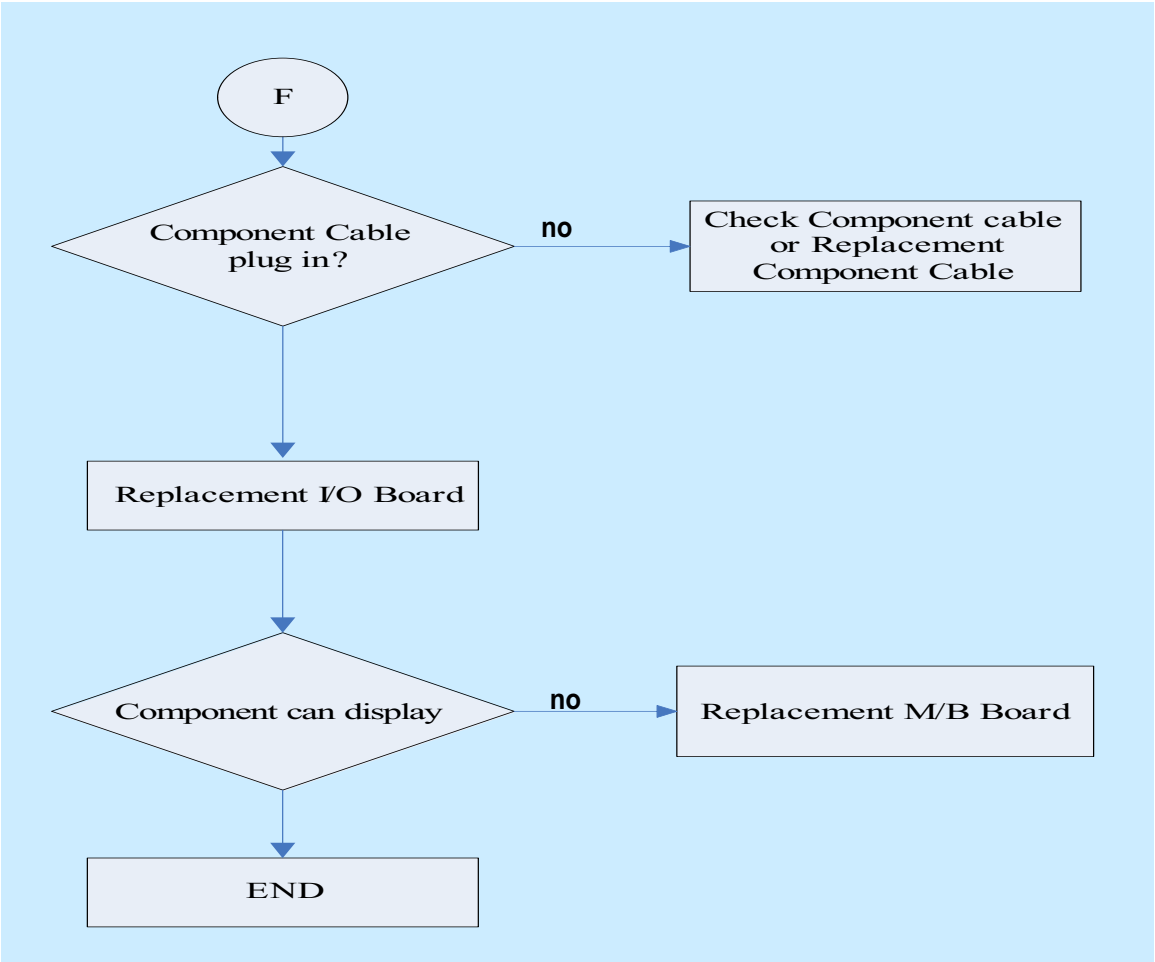
4. Button key does not have function



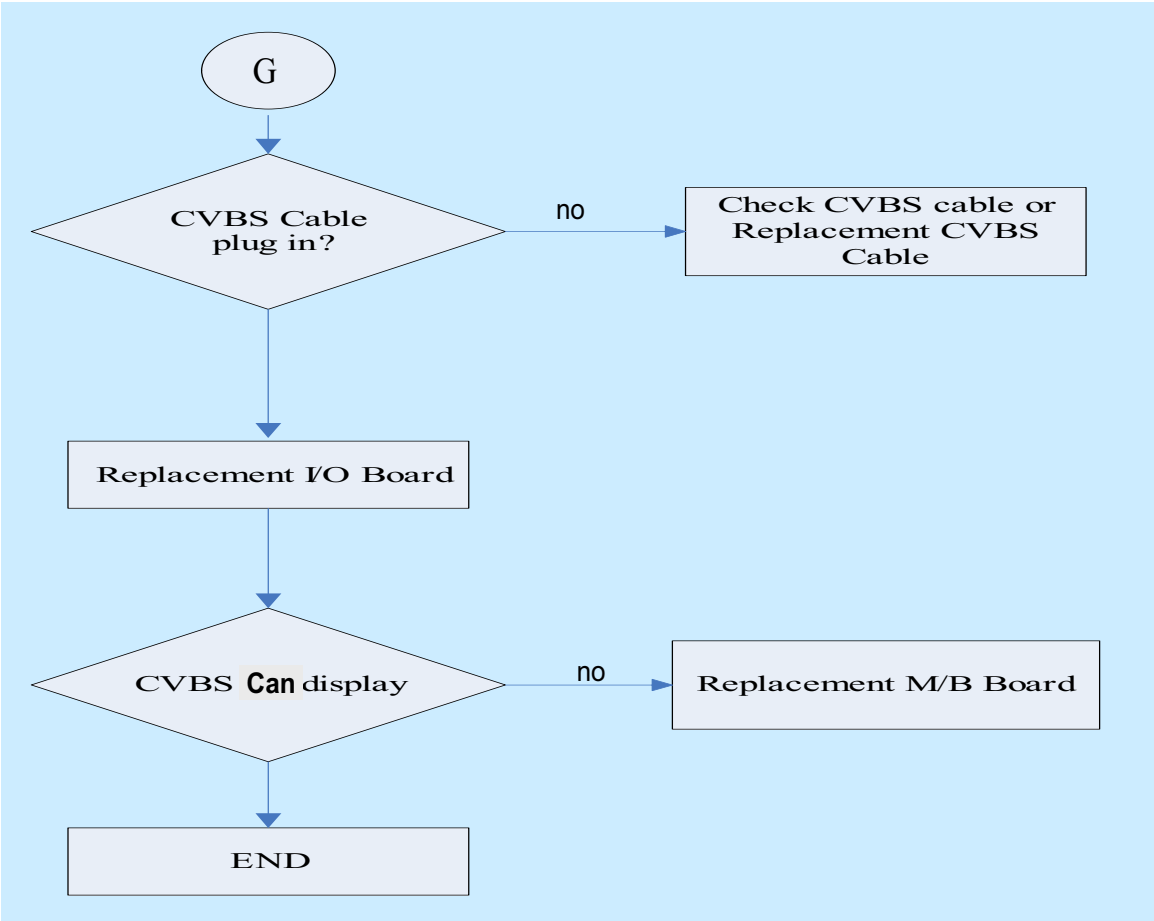
5. RF no display



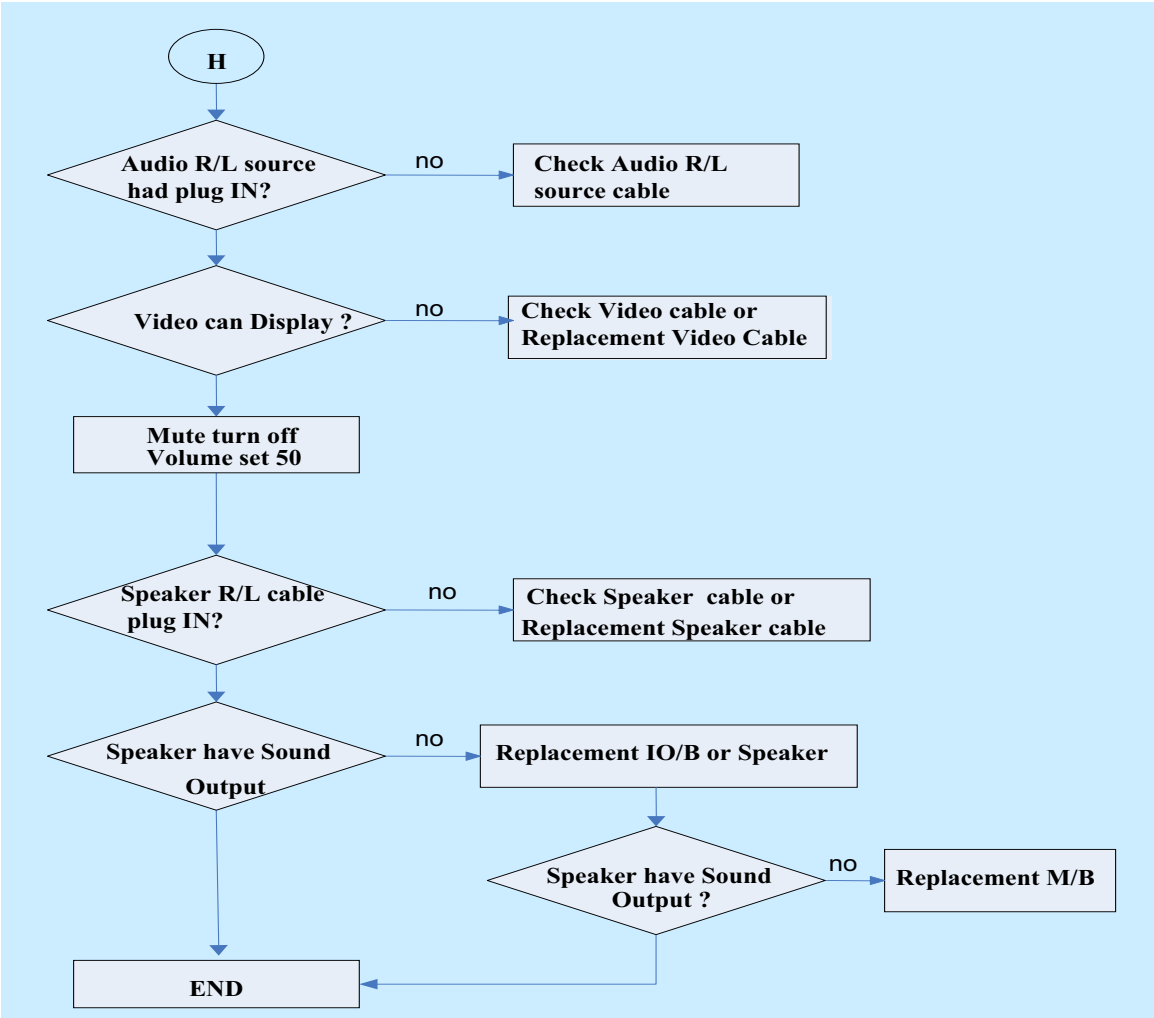
6. Component 1, 2 no display



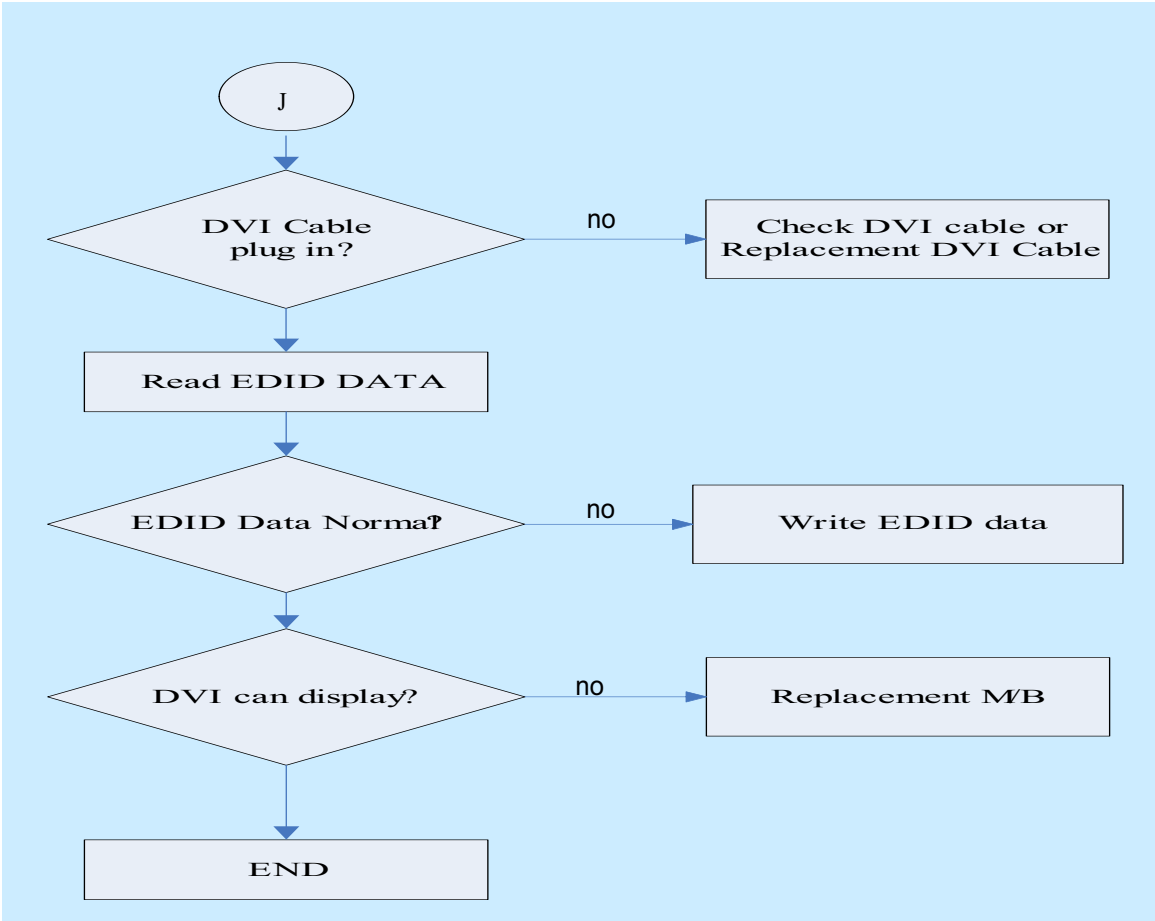
7. AV1, AV2 no display



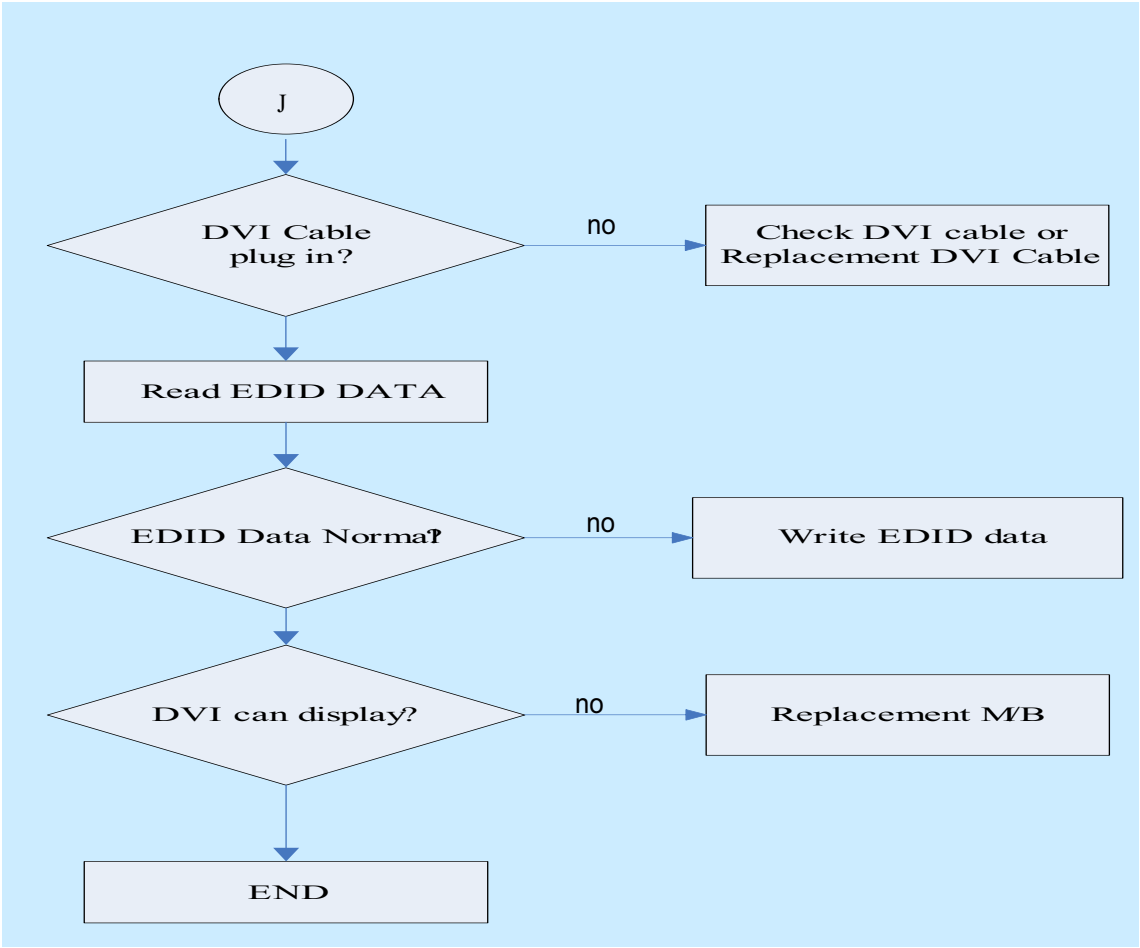
8. Speaker does not have sound



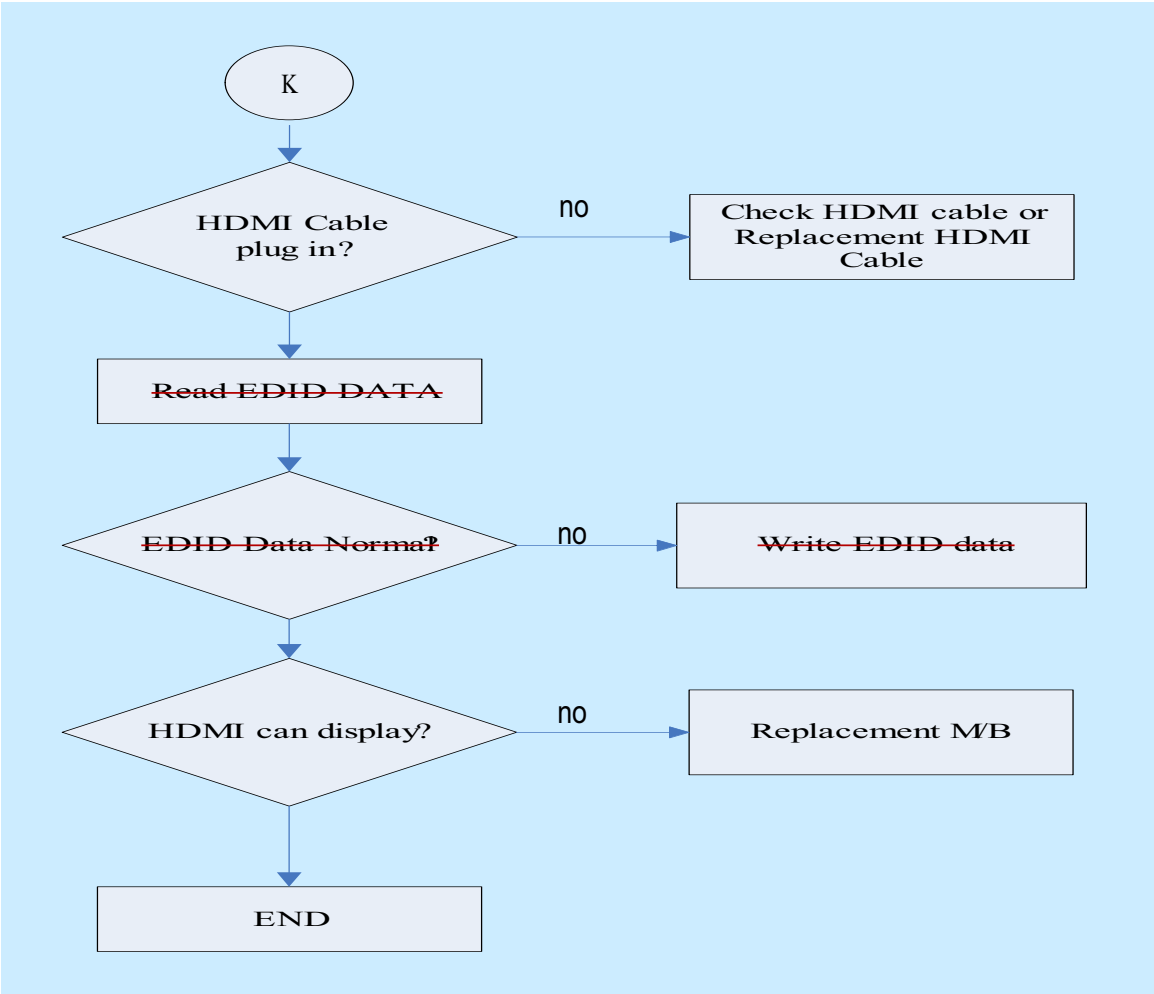
9. VGA no display



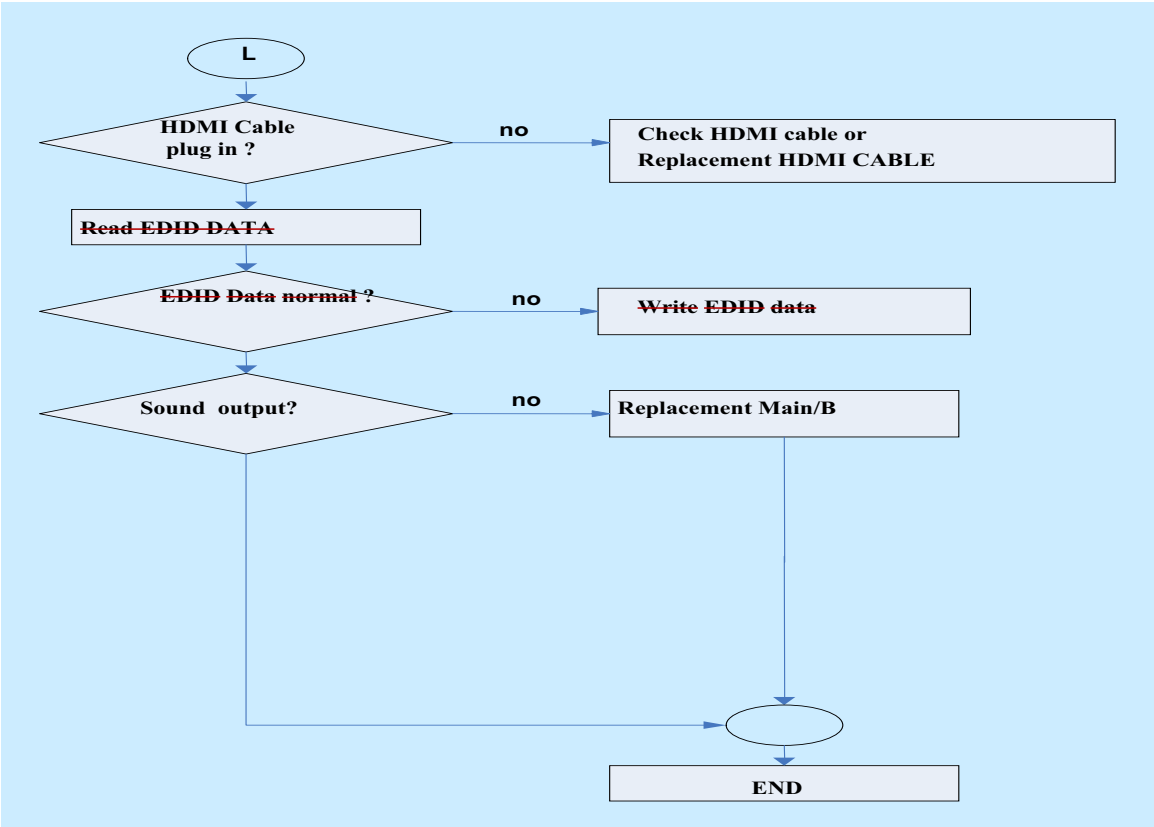
10. DVI no display

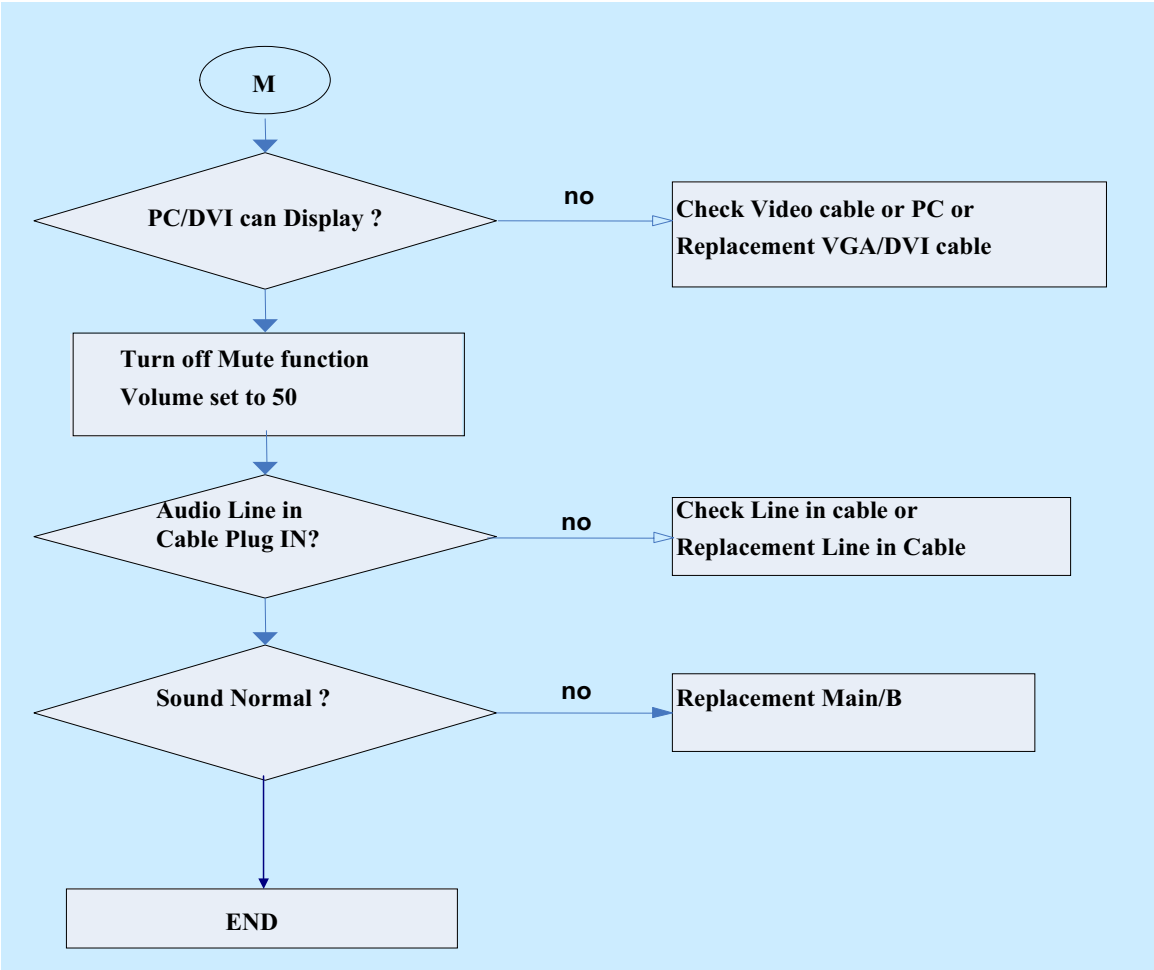


11. HDMI no display

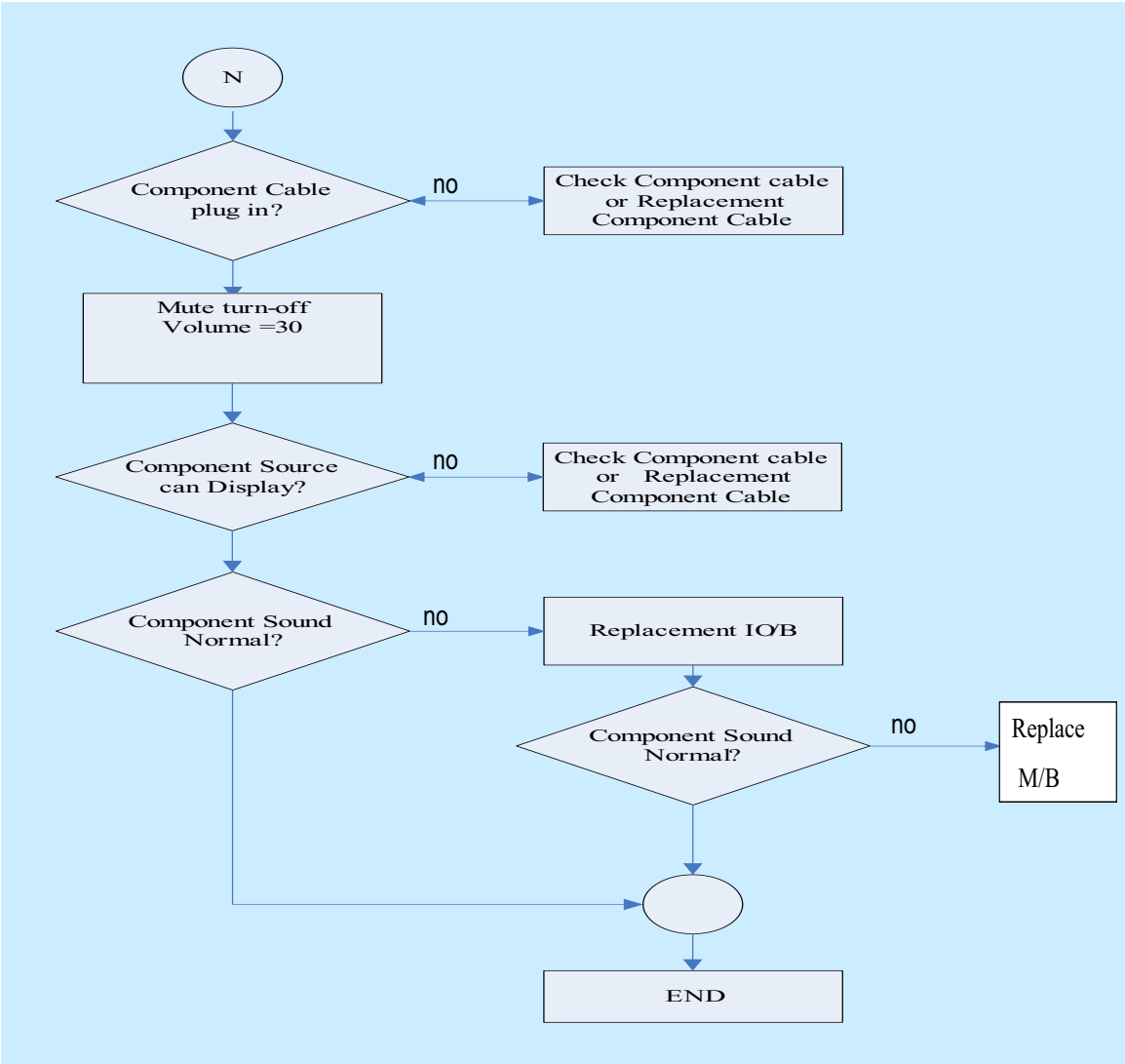


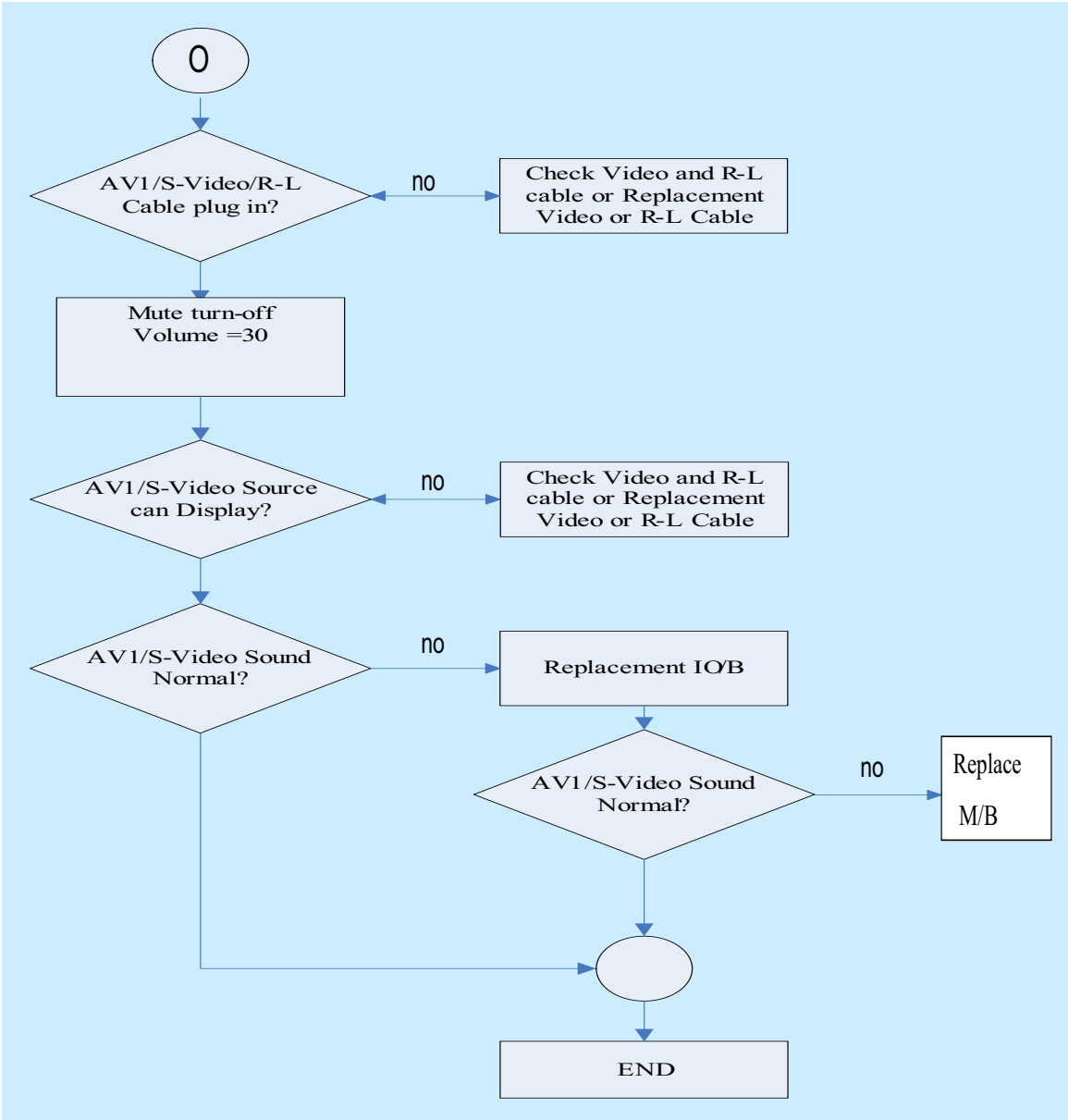
12. HDMI no sound





14. Component no sound





## FRU (Field Replaceable Unit) List

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This chapter gives you the FRU (Field Replaceable Unit) listing in global configurations of AT3220A/AT3220B/AT3220. Refer to this chapter whenever ordering for parts to repair or for RMA (Return Merchandise Authorization). Please note that WHEN ORDERING FRU PARTS, you should check the most up-to-date information available on your regional web or channel. For whatever reasons a part number change is made, it will not be noted on the Service Guide. For ACER AUTHORIZED SERVICE PROVIDERS, your Acer office may have a DIFFERENT part number code from those given in the FRU list of this printed Service Guide. You MUST use the local FRU list provided by your regional Acer office to order FRU parts for repair and service of customer machines.

**NOTE:** To scrap or to return the defective parts, you should follow the local government ordinance or regulations on how to dispose it properly, or follow the rules set by your regional Acer office on how to return it.



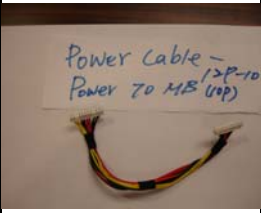
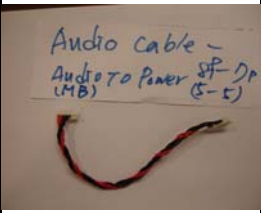
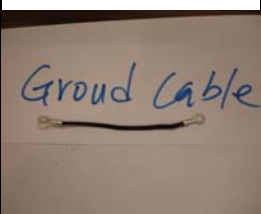
# AT3220A/AT3220B/AT3220 FRU List

| Picture                                                                             |  | Part Name (Description)   | Part Number  |
|-------------------------------------------------------------------------------------|--|---------------------------|--------------|
| ACCESSORY                                                                           |  |                           |              |
|                                                                                     |  | REMOTE CONTROLLER - USA   | 25.M25V7.001 |
|                                                                                     |  | REMOTE CONTROLLER - EU    | 25.M28V7.001 |
|                                                                                     |  | REMOTE CONTROLLER - AUS   | 25.M38V7.001 |
| BOARD                                                                               |  |                           |              |
|    |  | POWER BOARD               | 55.M25V7.001 |
|    |  | FUNCTION BOARD            | 55.M25V7.002 |
|  |  | IR BOARD                  | 55.M25V7.003 |
|  |  | IO/TURNER BOARD - PAL EU  | 55.M12V7.004 |
|  |  | IO/TURNER BOARD - NTSC NA | 55.M28V7.001 |

# AT3220A/AT3220B/AT3220 FRU List

| Picture                                                                             |  | Part Name (Description)                  | Part Number  |
|-------------------------------------------------------------------------------------|--|------------------------------------------|--------------|
|    |  | IO/TURNER BOARD - PAL AUS                | 55.M12V7.005 |
|    |  | MAIN BOARD - PAL EU FOR AU               | 55.M25V7.005 |
|    |  | MAIN BOARD - NTSC NA FOR AU              | 55.M28V7.002 |
|  |  | MAIN BOARD - PAL AUS FOR AU              | 55.M38V7.001 |
| CABEL                                                                               |  |                                          |              |
|  |  | LVDS CABLE - PANEL TO MB FOR AU          | 50.M25V7.001 |
|  |  | INVERTER CABLE 3 CON (14P/4P/10P) FOR AU | 50.M25V7.002 |

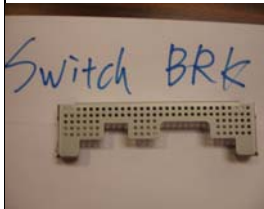
**AT3220A/AT3220B/AT3220 FRU List**

| Picture                                                                             |  | Part Name (Description)            | Part Number  |
|-------------------------------------------------------------------------------------|--|------------------------------------|--------------|
|    |  | CABLE - MB TO POWER BOARD 10P      | 50.M25V7.003 |
|    |  | CABLE - ADUIO TO POWER BOARD 8P/7P | 50.M25V7.004 |
|    |  | CABLE - MB TO KEY TO IR TO LED     | 50.M25V7.005 |
|  |  | SPEAKER CABLE                      | 50.M12V7.005 |
|  |  | GROUND CABLE                       | 50.M12V7.007 |
|                                                                                     |  | POWER CORD EU 3 PIN                | 27.L13VE.007 |
|                                                                                     |  | POWER CODE ITALY 3P 1.8M           | 27.M03V7.001 |
|                                                                                     |  | POWER CORD SWISS 3 PIN             | 27.M11V7.001 |
|                                                                                     |  | POWER CODE US 3P 1.8M              | 27.M03V7.004 |
|                                                                                     |  | POWER CODE - AUSTRALIA             | 27.M12V7.001 |
| CASE/COVER/BRACKET ASSEMBLY                                                         |  |                                    |              |

# AT3220A/AT3220B/AT3220 FRU List

| Picture                                                                             |  | Part Name (Description)                                                                                                                   | Part Number  |
|-------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------|--------------|
|    |  | FRONT BEZEL ASSY                                                                                                                          | 60.M25V7.001 |
|    |  | BACK COVER ASSY                                                                                                                           | 60.M25V7.002 |
|    |  | STAND ASSY                                                                                                                                | 60.M25V7.003 |
|  |  | LCD SUPPORT BRACKET - L<br>Note: The picture shows left and right LCD support bracket.<br>Left LCD support bracket is on the lower side.  | 33.M25V7.001 |
|  |  | LCD SUPPORT BRACKET - R<br>Note: The picture shows left and right LCD support bracket.<br>Right LCD support bracket is on the upper side. | 33.M25V7.002 |
|                                                                                     |  | SIDE FIXED - L                                                                                                                            | 33.M25V7.003 |
|  |  | POWER SUPPORT BRACKET                                                                                                                     | 33.M25V7.004 |

**AT3220A/AT3220B/AT3220 FRU List**

| Picture                                                                                                                                                                                                                              |  | Part Name (Description)                                                                                                                                            | Part Number  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
|  A white plastic switch bracket with multiple mounting holes and a central slot. A handwritten label "Switch BRK" is placed above it.               |  | SWITCH BRACKET                                                                                                                                                     | 33.M25V7.005 |
|  A white plastic EMI shielding component with a central rectangular opening and side flaps. A handwritten label "EMI Shielding" is placed below it. |  | EMI SHIELDING                                                                                                                                                      | 33.M25V7.006 |
|                                                                                                                                                                                                                                      |  | STAND SUPPORT BRACKET                                                                                                                                              | 33.M25V7.007 |
|  A white plastic function key with a rectangular shape and a central button. A handwritten label "Function key" is placed above it.                |  | FUNCTION KEY                                                                                                                                                       | 42.M25V7.001 |
|                                                                                                                                                                                                                                      |  | PCB HOLDER - PAL EU<br>Note: The spare part- PCB Holder is without sponge.<br>Please detach the spone and attach the new PCB holder if you ever change this part.  | 33.M25V7.008 |
|                                                                                                                                                                                                                                      |  | PCB HOLDER - NTSC NA<br>Note: The spare part- PCB Holder is without sponge.<br>Please detach the spone and attach the new PCB holder if you ever change this part. | 33.M28V7.001 |
|  A white plastic PCB holder with a rectangular shape and a central slot. A handwritten label "PCB holder w/o sponge" is placed below it.          |  | PCB HOLDER - PAL AUS<br>Note: The spare part- PCB Holder is without sponge.<br>Please detach the spone and attach the new PCB holder if you ever change this part. | 33.M38V7.001 |
| LCD                                                                                                                                                                                                                                  |  |                                                                                                                                                                    |              |
|                                                                                                                                                                                                                                      |  | LCD(TFT) 31.5 IN. T315XW01 V5(V515)                                                                                                                                | 56.M25V7.001 |
| SPEAKER                                                                                                                                                                                                                              |  |                                                                                                                                                                    |              |

**AT3220A/AT3220B/AT3220 FRU List**

| Picture                                                                           |  | Part Name (Description)                                                                                 | Part Number  |
|-----------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------|--------------|
|  |  | SPEAKER ASSY - L<br>Note: The picture shows left and right speaker. Left speaker is on the left side.   | 23.M25V7.001 |
|  |  | SPEAKER ASSY - R<br>Note: The picture shows left and right speaker. Right speaker is on the right side. | 23.M25V7.002 |
| LABEL                                                                             |  |                                                                                                         |              |
|                                                                                   |  | POWER LABEL                                                                                             | 40.M25V7.001 |
|                                                                                   |  | I/O TURNER LABEL -PAL EU                                                                                | 40.M25V7.002 |
|                                                                                   |  | I/O TURNER LABEL - NTSC US                                                                              | 40.M28V7.002 |
|                                                                                   |  | I/O TURNER LABEL - PAL AUS                                                                              | 40.M38V7.001 |
| MISCELLANEOUS                                                                     |  |                                                                                                         |              |
|                                                                                   |  | PANEL CONTACT PAD                                                                                       | 47.M01V7.004 |
| SCREW                                                                             |  |                                                                                                         |              |
|                                                                                   |  | NUT IO EA1(MBEA1001,REV3D)                                                                              | 86.M25V7.001 |
|                                                                                   |  | SCREW F3.0*6-B(NI)                                                                                      | 86.M25V7.002 |
|                                                                                   |  | SCREW T4*12-B(BNI)                                                                                      | 86.M25V7.003 |
|                                                                                   |  | SCREW M4*8-B(BNI)-NYLOK                                                                                 | 86.M25V7.004 |
|                                                                                   |  | SCREW M4*6-B(BNI)                                                                                       | 86.M25V7.005 |
|                                                                                   |  | SCREW F3.0*6-B(NI)                                                                                      | 86.M25V7.006 |
|                                                                                   |  | SCREW M4*6-B(BNI)                                                                                       | 86.M25V7.007 |
|                                                                                   |  | SCREW T4*8-B(BNI)                                                                                       | 86.M25V7.008 |
|                                                                                   |  | SCREW M3*6-B(BNI)                                                                                       | 86.M08V7.003 |
|                                                                                   |  | SCREW M4*6 P (NI)                                                                                       | 86.M01V7.002 |
|                                                                                   |  | SCREW M3*6-B(BNI)                                                                                       | 86.M08V7.003 |
|                                                                                   |  | SCREW T3*8-P(BLACK)                                                                                     | 86.M03V7.003 |
|                                                                                   |  | SCREW T3*8-B(BNI)                                                                                       | 86.M08V7.007 |
| PACKING                                                                           |  |                                                                                                         |              |
|                                                                                   |  | EPE BAG - AT2602                                                                                        | 47.M11V7.003 |
|                                                                                   |  | EPE SHEET - AT3205                                                                                      | 47.M09V7.004 |
|                                                                                   |  | PE BAG/235*300+50 AH2(HAAH2005,R3B)                                                                     | 47.M25V7.001 |
|                                                                                   |  | EPS FOAM(TR) HX2(HBHX2005,REV3B)                                                                        | 47.M25V7.002 |
|                                                                                   |  | EPS FOAM(TL) HX2(HBHX2006,REV3B)                                                                        | 47.M25V7.003 |
|                                                                                   |  | EPS FOAM(BR) HX2(HBHX2007,REV3B)                                                                        | 47.M25V7.004 |
|                                                                                   |  | EPS FOAM(BL) HX2(HBHX2008,REV3B)                                                                        | 47.M25V7.005 |
|                                                                                   |  | ID CARD-STN ZG1S(HCZG1036,REV3A)                                                                        | 47.M25V7.006 |
|                                                                                   |  | CARTON HV2(HFHV2003,REV3A)                                                                              | 47.M25V7.007 |

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**AT3220A/AT3220B/AT3220 FRU List**

| Picture |  | Part Name (Description)       | Part Number  |
|---------|--|-------------------------------|--------------|
|         |  | CARTON CLASP VW7(JXVW7001,3A) | 47.M08V7.020 |